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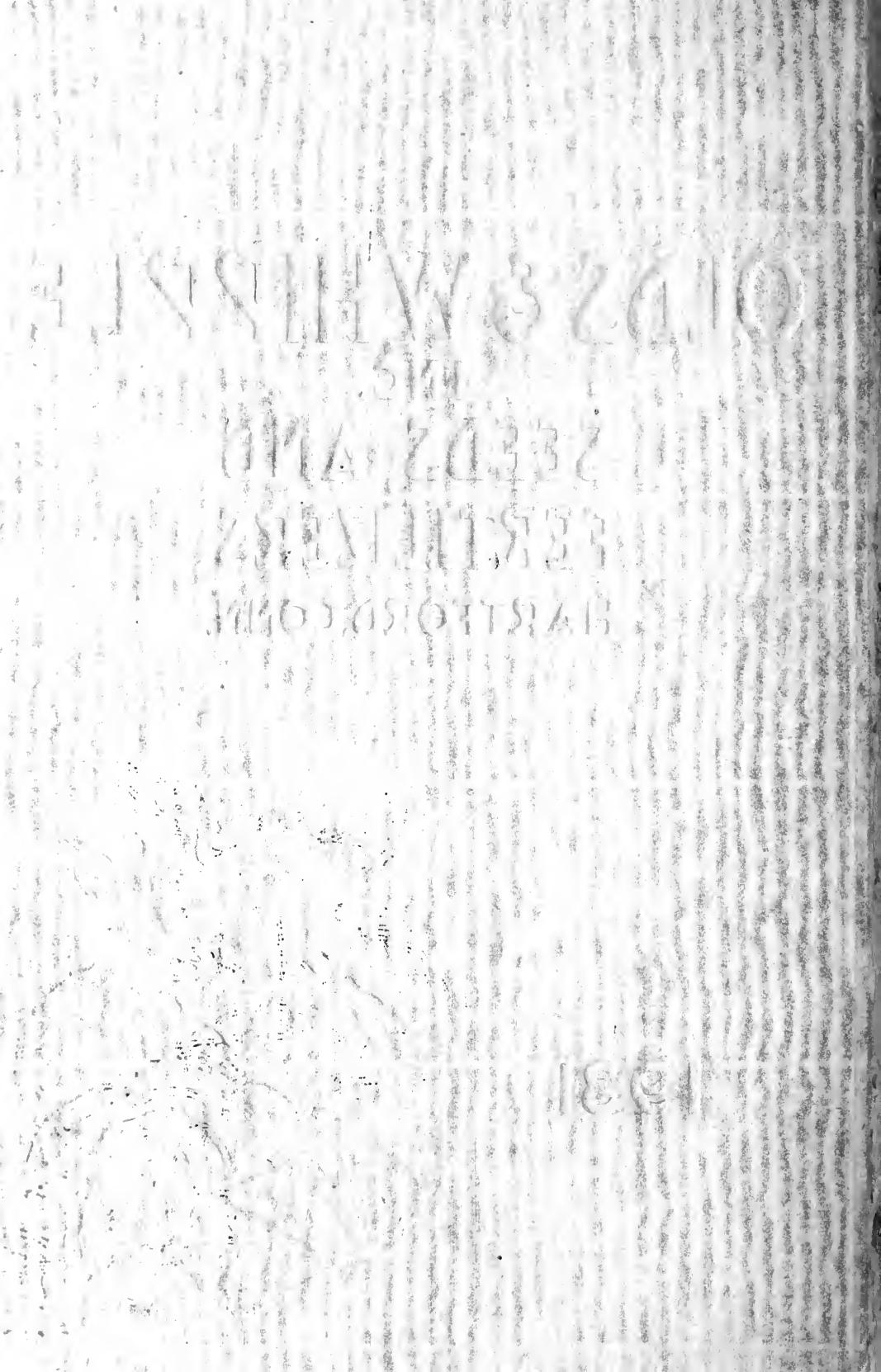
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**OLDS & WHIPPLE**  
**INC.**  
**SEEDS AND**  
**FERTILIZERS**  
**HARTFORD, CONN.**

**1931**



Vegetable Seed Trials



# SEED, FERTILIZER

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AND

## AGRICULTURAL IMPLEMENT CATALOG

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For 1931



FERTILIZER FACTORY:  
Tolland Street, East Hartford, Conn.

MAIN OFFICE AND IMPLEMENT WAREHOUSE:  
164-6-8 State St., Hartford, Conn.

OLDS & WHIPPLE, Inc.

Offices and Agricultural Warerooms at 168 State Street, Hartford, Conn.



Below is our Fertilizer Factory located on Tolland Street, East Hartford, Conn.



# Foreword

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Carrying on in our fifty-fourth year.

For fifty-three years we have been distributing fertilizers, seeds and farm equipment to the farmers in southern New England.

Fifty-three years ago, the fundamental foundation of square dealing was laid down. On that foundation we have built, and shall continue to build. In the following pages, we attempt to describe in a brief way the seeds, fertilizers, machinery, and other farm supplies that our New England farmers must necessarily use to carry on successfully.

For 1931 we are enabled to offer fertilizers at a considerable reduction over 1930. This reduction has been made possible partly by reduced cost of some raw materials, and partly by practising the closest economy in every process in preparing the goods for market.

We are fully aware of the agricultural crisis existing, and are endeavoring to do our part to improve conditions. Our slogan is "Good Equipment Makes A Good Farmer Better." To produce good crops at the lowest cost, good equipment is necessary. It is false economy to continue with worn-out machinery.

The fertilizers and implements we offer are adapted to conditions as they exist here in New England. Our prices are as low as is consistent with quality.

For fifty-three years we have endeavored to so conduct our business that we might be worthy of the confidence of our customers. We believe we have attained this priceless asset, and we shall zealously guard same.

# Olds & Whipple, Inc.

## List of Fertilizers and Raw Materials for 1931

### O. & W.'s Special Fertilizers

Complete Tobacco Fertilizer	High Grade Potato and Vegetable Fertilizer
Blue Label Tobacco Fertilizer	
High Grade Tobacco Starter	Double Strength Fertilizer
High Grade Tobacco Starter and Potash Compound	Complete Grass Fertilizer
Complete Market Garden Fertilizer	Lawn Fertilizer

### WILCOX FORMULAE

Corn Special Fertilizer	High Grade Fish and Potash
Potato and Vegetable Fertilizer	Top Dresser

### FERTILIZING MATERIALS

Swift Sure Phosphate.	Super Phosphate. (acid phosphate)
Swift Sure Bone Meal.	Sulphate of Ammonia.
High Grade C. S. Meal guaranteed analysis.	Nitrate of Soda.
Castor Pomace guaranteed analysis.	Sheep Manure.
Tobacco stems in bales.	Dry Ground Fish.
High Grade Muriate Potash.	Tankage.
High Grade Sulphate Potash.	Steamed Bone.
Nitrate of Potash.	Precipitated Bone Phosphate.
Carbonate of Potash.	Lime for Agricultural use.
	Fine ground Nova Scotia Plaster.

We offer our usual list of Special Formulas for all crops. We would call especial attention to our O & W High Grade Starter and Potash Compound to be used in conjunction with Castor Pomace or Cotton Seed Meal and when so used making a complete tobacco fertilizer. This combination has been extensively used during the past few years with most satisfactory results.

We again urge our customers to order their fertilizer at once and allow us to deliver same at an early date and thus avoid the mad scramble that always comes late in the season. There is no good reason for delay.

### Our Special Mixtures for all Crops

The following pages give you a list of the special fertilizers which we manufacture at our own factory.

These special mixtures are from tested formulae, proved out by practical growing tests. They are finely ground, and mechanically, in such condition, as to render them readily available to the growing crops.

Their use will repay you. They produce the kind of crops that pay. Used and endorsed by best growers.

# Fertilizing Cigar Leaf Tobacco

## for Bigger Yields and Better Burning Quality

A good cigar depends upon its burning quality and flavor for its reputation.

Leaf tobacco for making a good cigar must be of the best quality, must hold fire well, not burn too fast or too slowly. It must not coal on the cigar and it must leave a clear white or light gray ash, not a muddy ash.

Cigar smokers everywhere are complaining about the quality of the cigar being made today. Manufacturers cannot make good cigars unless they get good tobacco, and that is where the grower comes in.

### Leaf-Wise

No matter how old a man is, if he is wise, he can still acquire more wisdom. No matter how old a grower is, he can still acquire more wisdom about a tobacco leaf.

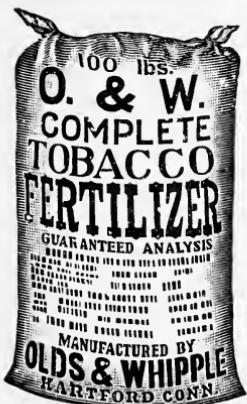
The tobacco plant, perhaps more than any other plant, can be and is influenced for better or worse by proper or improper fertilization. In applying fertilizer, the grower must have two essential things in mind: 1, to preserve the productiveness of his soil; and 2, to produce leaf that has the most desirable qualities, namely, BURN — GRAIN — TEXTURE — and COLOR. This is a large order, but it can be successfully met by growers carefully studying the right fertilizers to use.

### Fertilizers

The production of a good tobacco crop requires a large amount of plant food, especially nitrogen and potash.

Good cigar tobacco can be produced by the use of fertilizers without manure. In some tobacco areas manure is used. Experiments as conducted at the Pennsylvania Experiment Station show, however, that there is a great advantage and more profit by using complete fertilizer in addition to manure. Fertilizer improves both the yield and the quality. These points have been brought out in a very convincing way by a test in Lancaster County, Pa., from 1916 to 1921. Ten tons of manure produced 1,770 lbs. of tobacco, but with 1,750 lbs. of complete fertilizer, the yield was 2,270 lbs. of tobacco of much better quality and burn.

Potash not only greatly increases the yield, but it also has a marked effect on quality. Every complete fertilizer, whether used alone or with manure, should contain plenty of potash to improve the quality. Better quality and better yields must go together if the tobacco grower is to make the best profit.



## O. & W. Complete Tobacco Fertilizer

Thousands of tons of this formula are used up and down the Connecticut Valley, proved to be the best by years of experience. While we make many special formulae to suit the ideas of our customers, O. & W. COMPLETE leads them all in popularity. This formula is the result of years of experimenting on our own farms and is endorsed by buyers of the leaf which is the strongest kind of recommendation.

GUARANTEED ANALYSIS { 5 to 6% Ammonia.  
3 to 4% Available Phosphoric Acid.  
5 to 6% Actual Potash.

## Our Blue Label Brand Tobacco Fertilizer

This fertilizer carries 1000 lbs. of C. S. Meal in every ton, put up for the grower who desires a large amount of meal under his tobacco crop. The phosphoric acid and potash are derived from the same high grade sources as our Complete Tobacco Fertilizer.

GUARANTEED ANALYSIS { 6 to 7% Ammonia.  
3 to 4% Available Phosphoric Acid.  
6 to 7% Actual Potash.

## O. & W. High-Grade Tobacco Starter

This high grade starter has been used with conspicuous success by some of our best growers in the valley. We recommend that it be applied after the first time hoeing. At that critical stage of growth an abundant supply of quickly available ammonia enables the plant to get a vigorous start, overcome and grow away from any unfavorable condition that may exist.

Experience has taught us that the crop that grows quickly, vigorously and does not stop until it reaches maturity produces the best goods.

Apply about 500 lbs. per acre.

GUARANTEED ANALYSIS { 10 to 11% Ammonia.  
3 to 4% Available Phosphoric Acid.

## O. & W. High Grade Tobacco Starter and Potash Compound

This formula with 5 per cent quickly soluble Ammonia and 15 per cent actual Potash should be used with C. S. Meal or Castor Pomace in growing the tobacco crop and when so used makes a complete fertilizer. The Ammonia of C. S. Meal or Pomace is slow acting and on most lands a more quickly soluble form of Ammonia is needed to start the crop. We recommend using 1000 to 1500 lbs. per acre with a ton of C. S. Meal or Pomace.

GUARANTEED ANALYSIS { 5 to 6% Ammonia.  
4 to 5% Available Phosphoric Acid.  
15 to 16% Actual Potash.

## Fertility in Truck Farming

Success in commercial vegetable growing consists largely in maintaining the full productive power of the land at the lowest cost and with the least interruption of crop continuity. The increasing scarcity of stable manure and its nearly prohibitive cost have obliged most commercial growers to turn to commercial fertilizers for plant food, and to cover crops for their organic matter. Even where manure is available in quantity, growers are using considerable amounts of fertilizer.

## O. & W. Complete Market Garden Fertilizer

This is one of our high grade special mixtures for use on Corn, Potato, Onion Crops, Market Garden and general purpose fertilizer.

The sources of plant food are such as are exceedingly available to the plant and best suited to promoting rapid and vigorous growth. Tested at our own farms we are able to speak authoritatively as to its merits. All growers will be repaid by using this special mixture on their Crop.

Our soils are well adapted to the culture of these Crops and to make them profitable as well, is an easy matter if the culture is supplemented and promoted by the use of our special fertilizer.

GUARANTEED ANALYSIS { 4 to 5% Ammonia.  
8 to 9% Available Phosphoric Acid.  
4 to 5% Actual Potash.

## O. & W. Grass Fertilizer

A complete fertilizer with all the essential elements for rapid and luxurious growth, carrying both soluble salts and organic material, it is suitable both for top dressing or permanent seeding down mixture.

GUARANTEED ANALYSIS { 6 to 7% Ammonia.  
6 to 7% Available Phosphoric Acid.  
4 to 5% Actual Potash.

## O. & W. High Grade Potato and Vegetable Fertilizer

This is a concentrated mixture running high in analysis in every ingredient, and as a formula, is extensively used in the potato growing sections of Maine. To produce large crops of potatoes you must feed heavily of Potash. This was thoroughly proven during the war, as even when Potash was extremely high and scarce some of the Maine potato growers paid the price for this ingredient and were well repaid by increased crop.

GUARANTEED ANALYSIS { 5 to 6% Ammonia.  
8 to 9% Available Phosphoric Acid.  
7 to 8% Actual Potash.



Planted with Maine Certified Green Mountains purchased from us and grown on our High Grade Potato Fertilizer by Alex Mulinite & Son, Windsorville, Conn. .

We are now mixing Wilcox formulae, having a year ago purchased the mixed fertilizer business of the Wilcox Fertilizer Co., of Mystic, Conn. Wilcox fertilizers have always enjoyed a good reputation. It is our aim to maintain and enhance this reputation, making only such changes as recent scientific research has proved advantageous.

We offer the following Wilcox formulae:

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## Wilcox Corn Special

This is an old favorite, moderate in price, made of soluble materials, and producing fine crops.

GUARANTEED ANALYSIS  $\left\{ \begin{array}{l} 3 \text{ to } 4\% \text{ Ammonia.} \\ 10 \text{ to } 11\% \text{ Available Phosphoric Acid.} \\ 4 \text{ to } 5\% \text{ Actual Potash.} \end{array} \right.$

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## Wilcox High Grade Fish and Potash

This formula made with fish base is deservedly popular with market gardeners; because of the fish used the price is slightly higher than our standard Market Garden. In certain market garden sections, it is a prime favorite.

GUARANTEED ANALYSIS  $\left\{ \begin{array}{l} 4 \text{ to } 5\% \text{ Ammonia.} \\ 8 \text{ to } 10\% \text{ Available Phosphoric Acid.} \\ 4 \text{ to } 5\% \text{ Actual Potash.} \end{array} \right.$

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## Wilcox Potato and Vegetable Phosphate

Used extensively in growing potatoes and market garden truck, carrying a high percentage of potash needed in many crops.

GUARANTEED ANALYSIS  $\left\{ \begin{array}{l} 5 \text{ to } 6\% \text{ Ammonia.} \\ 8 \text{ to } 9\% \text{ Available Phosphoric Acid.} \\ 7 \text{ to } 8\% \text{ Actual Potash.} \end{array} \right.$

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## Wilcox Top Dresser

A standard mixture made of soluble materials for application to grass lands, used either as top dressing or seeding down.

GUARANTEED ANALYSIS  $\left\{ \begin{array}{l} 7 \text{ to } 8\% \text{ Ammonia.} \\ 6 \text{ to } 7\% \text{ Available Phosphoric Acid.} \\ 5 \text{ to } 6\% \text{ Actual Potash.} \end{array} \right.$

DESCRIPTIVE CATALOGUE and PRICE LIST  
OF  
**Garden and Farm Seeds,  
Agricultural Implements and  
Fertilizers  
for 1931**

**Important Notice—Free Delivery of Seeds**

We Deliver, Transportation Paid in the U. S. and Possessions, Vegetable Seeds by the packet, ounce, quarter-pound, pound.

On larger quantities purchaser pays transportation. We also deliver, transportation paid, all Lawn Grass Seed mixtures in any quantity.

In making this Free Delivery offer we reserve the right to ship goods either by Parcel Post, Express or Freight.

We reserve the right to advance prices without notice should current conditions require it.

**REMITTANCES**

May be made by Express Money Order, P. O. Money Order or Check.

**NOTE:—If cash or stamps are sent by mail, REGISTER THE LETTER, otherwise it travels at owner's risk.**

**C. O. D. ORDERS**

If goods are wanted C. O. D., 25 per cent of the amount must accompany the order. Charges for returning the money will be collected on delivery.

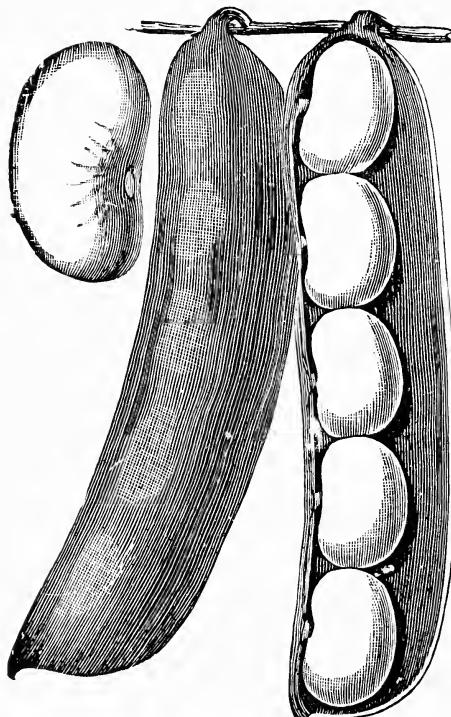
In accordance with the universal custom of the Seed Trade, Olds & Whipple, Inc. give no warranty, express or implied, as to description, quality, productiveness, or any other matter, of any Seeds they send out, and they will not be in any way responsible for the crop.

## ASPARAGUS

An Asparagus bed may be made from one or two year old roots, planted in fall or spring. Plant the roots in rows four feet apart, leaving about twelve inches between plants in the row. Should be planted in trenches and gradually filled in as plants grow. Seeds may be sown in April in drills one foot apart and one inch deep. One ounce of seed will sow sixty feet of drill.

	Per Pkt.	Per $\frac{1}{4}$ lb.	Per 1b.
Mary Washington (seed)	.	.	\$0.10    \$0.40    \$1.25
Mary Washington roots	.	.	1.75 per 100

## BEANS—Dwarf or Bush



Burpee's Bush Lima.

To produce a regular succession of crops through the season, plant every two weeks, from about beginning of May to end of summer. Plant in rows 18 inches apart, two inches deep; cultivate only when soil is dry, as the scattering of earth on vines will cause them to rust. One quart will plant 100 feet of drill and one and one-half bushels for one acre.

While we exercise the greatest care to have all seeds pure and reliable, we do not give any warranty, express or implied, and will not be in any way responsible for the crop.

	5 lb.	15 lb.	Lot	5 lb.	15 lb.	Lot
	Per lb.					
Burpee's Bush Lima.—A true bush form and immense cropper,	.	.	.	.	.	.
				\$0.40	\$0.30	\$0.27
Fordhook Bush Lima.—	.	.	.	.	.	.
				.40	.32	.30

	Per lb.	5 lb. Lot Per lb.	15 lb. Lot Per lb.
<b>Improved Rust Proof, Golden Wax.</b> —Early, long, round, stringless pods, . . . . .	.40	.28	.25
<b>Black Wax, Pencil Pod.</b> —Very early, round thick pods, . . . . .	.40	.28	.25
<b>Wardwell's Kidney Wax.</b> —Early, flat long wax pods, very fine, . . . . .	.40	.28	.25
<b>Early Valentine.</b> —Improved, true round green pod, . . . . .	.40	.28	.25
<b>Bountiful.</b> —Flat Green pods, stringless, . . . . .	.40	.28	.25
<b>Burpee's Stringless.</b> —Round Green pod, early, . . . . .	.40	.28	.25
<b>Horticultural Dwarf.</b> —Green pod, a superior shell bean, medium early, . . . . .	.40	.28	.25
<b>Low's Champion.</b> —Large green flat stringless pods, . . . . .	.40	.30	.27
<b>White Kidney.</b> —An excellent shell bean and for baking, green pod, . . . . .	.30	.25	.22
<b>White Marrow.</b> —A fine winter bean, . . . . .	.30	.25	.22
<b>Boston Favorite.</b> —A large late dwarf horticultural, . . . . .	.30	.27	.24
<b>Red Kidney.</b> —An excellent shell bean, similar to White Kidney, . . . . .	.30	.25	.22

## BEANS—Pole

Plant in hills three to four feet apart, putting four or five beans in a hill, and leaving space in the center for the pole. One quart of limas will plant 100 hills. One quart of the smaller seeded sorts will plant about 200 hills.

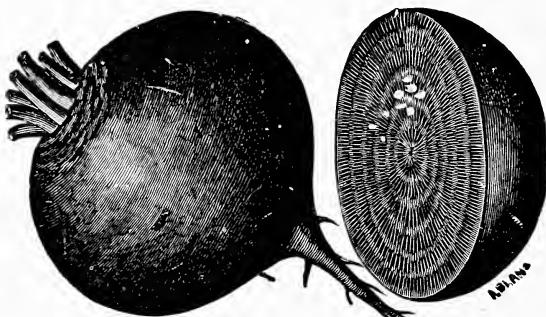
	Per lb.	5 lb. Lot Per lb.	15 lb. Lot Per lb.
<b>Extra Leviathan Lima.</b> —An early and large variety, . . . . .	.40	.32	.26
<b>Lima, Large White.</b> —An old and choice variety, . . . . .	.40	.32	.26
<b>Lima, King of the Garden.</b> —Large and extremely productive, . . . . .	.40	.32	.26
<b>Horticultural Cranberry.</b> —Excellent quality, . . . . .	.35	.32	.26
<b>Worcester or King Horticultural.</b> . . . . .	.40	.32	.28
<b>Early Golden Cluster Wax Pole.</b> —Early golden pods, large and tender, . . . . .	.40	.35	.28
<b>Kentucky Wonder.</b> —Green pod, very prolific, . . . . .	.35	.28	.25
<b>Kentucky Wonder.</b> —Wax or yellow podded, very prolific, . . . . .	.35	.28	.25

## BEETS—Table Varieties

Sow from April to beginning of July, in drills about one foot apart, covering seeds about one inch. Thin the young plants when suitable size for greens to six or eight inches apart. One ounce sows 50 feet of drill, 5 to 6 pounds to one acre.

	Per. pkt.	Per oz.	Per lb.
<b>Early Wonder.</b> —Deep red, round, very popular with market gardeners, . . . . .	.10	.15	\$1.00
<b>Crosby's Egyptian.</b> —Early smooth and fine quality, . . . . .	.10	.15	.90
<b>Edman's Extra Early.</b> —One of the best, . . . . .	.10	.15	.90

		Per pkt.	Per oz.	Per lb.
<b>Early Eclipse.</b> —Very early, dark red color, . . .		.10	.15	.90
<b>Early Egyptian.</b> —Good color, a smooth turnip beet, . . .		.10	.15	.90
<b>Detroit Dark Red.</b> —Smooth, bright red, good keeper, . . .		.10	.15	1.00



Dewing's Early Blood Turnip.

<b>Dewing's Early Blood Turnip.</b> —A standard variety of excellent quality, . . . . .	.10	.15	.90
<b>Long Smooth Blood.</b> —An excellent late variety for winter use, . . . . .	.10	.15	.90
<b>Swiss Chard.</b> —Fine for greens, cultivated solely for leaves, . . .	.10	.15	1.00

## MANGOLD WURZEL

Sow in May or June in rows, 18 inches to 2 feet apart, and thin to 8 inches in the row. The value of these for stock feeding cannot be over estimated. Sow 6 to 8 pounds to one acre.

	Per oz.	Per lb.
<b>Carter's Mammoth Long Red.</b> —A heavy cropper, one of the best, . . . . .	.10	.65
<b>Norbiton Giant Long Red.</b> —Very productive, . . .	.10	.65
<b>Yellow Globe.</b> —Large globular formed roots, good for shallow soils, . . . . .	.10	.65
<b>Giant Half Sugar</b> —Rose shape and similar to Norbiton Giant, . . .	.10	.65
<b>Golden Tankard.</b> —A half-long variety of bright yellow color, . . . . .	.10	.65
<b>White Sugar, Lane's Improved.</b> —A well known variety, . . .	.10	.65

Mangold seed in 5 pound lots, 60 cents a pound.

## BROCCOLI

A vegetable resembling Cauliflower but much harder. Requires the same general culture as cabbage. One ounce of seed produces about 1,500 plants.

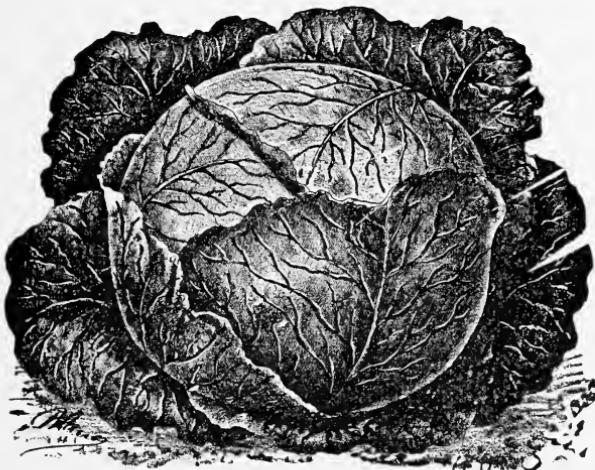
	Per pkt.	Per oz.
<b>Purple Cape.</b> —Medium size heads, hardy, . . . . .	.20	.65
<b>White Cape.</b> —Like Purple Cape, but of cream white color, . . .	.20	.65
<b>Early Green Italian</b> —or Calabrese, . . . . .	.25	.85
<b>Italian Broccoli Rape or Senaps</b> for bunching, . . .	.10	.35

## BRUSSELS SPROUTS

A species of cabbage family and cultivated in about same manner. One ounce of seed will produce about 1,200 plants.

	Per pkt.	Per oz.
O. & W.'S Best . . . . .	\$0.10	\$0.50

## CABBAGE—Early



All Seasons.

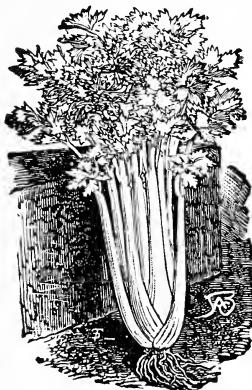
All the Cabbage family require rich, deep, well-drained soil. For the early kinds, plant in rows 30 inches apart and 16 inches between the plants. For the late varieties, three feet between the rows and two feet between the plants. For very early use, sow in January or February in hot-beds. Set out when plants are strong enough into other hot-beds or set in cold frames in March. Transplant when danger from frost is past to open ground. The late, or winter crop seed can be sown in May and the plants set out when large enough.

To destroy the green worm that attacks the cabbage plant, use a solution of one ounce of saltpetre in three gallons of water. One ounce of seed will produce about 3,000 plants, one-quarter pound for one acre.

	Per pkt.	Per oz.	Per lb.
Golden Acre.—Extra early Copenhagen type, . . .	\$0.20	\$0.50	\$5.00
Copenhagen Market.—Extra early round hard head, .	.15	.30	3.00
Early Jersey Wakefield.—A fine, very early medium sized market favorite, . . . . .	.10	.30	3.25
Early Summer.—A superior, second early, heads large and solid, . . . . .	.10	.30	3.25
Early Flat Dutch.—A fine early variety for family use, . .	.10	.30	3.25
All Seasons.—Medium early, very large and sure header, . .	.10	.30	3.25

## CABBAGE—Late Varieties

		Per pkt.	Per oz.	Per lb.
O. & W. Premium Flat Dutch.—An extra fine selection of the large late Flat Dutch, . . . . .	.10	.30	\$3.00	
Improved American Drumhead Savoy.—Large, fine quality, excellent winter cabbage, . . . . .	.10	.35	3.25	
Stone Mason Drumhead.—A large round solid variety, .10 . . . .	.10	.30	3.00	
Red Dutch Drumhead.—Fine solid dark red heads, . . . . .	.10	.30	3.00	
Hollander, or Danish.—A superior winter variety, heads round, very hard, fine and tender, . . . . .	.10	.35	4.00	
Sure Head.—Large growing, fine heading, solid and large, .10 . . . .	.10	.30	3.25	
Chinese.—Select strain, . . . . .	.10	.35	4.00	
Chinese Chihili.—Long slender, . . . . .	.10	.45	5.00	



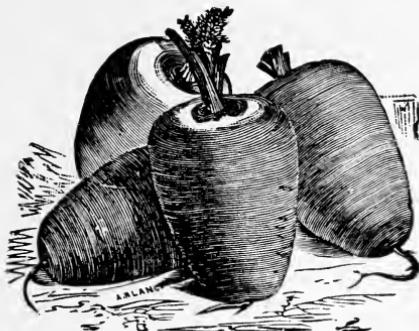
Paris Golden.

## CELERY

Sow seed about the first of April in hot-bed or cold frame. Transplant four inches apart, when three inches high in rich soil; water and protect until well rooted, then transplant into rows 5 or 6 feet apart either on surface or in trenches 8 inches deep. Set the plants 10 or 12 inches apart. To blanch draw earth around the plants from time to time.

One ounce of seed will give about 4,000 plants.

		Per pkt.	Per oz.	Per lb.
Paris Golden, Self Blanching, (French.)—An early golden variety, very popular, . . . . .	.20	.75	\$10.00	
Boston Market.—One of the best varieties in cultivation, .10 . . . .	.10	.30	3.00	
Celeriac.—Turnip rooted, used for salads and soups, . . . . .	.10	.25	3.00	
White Plume.—Easily bleached, usually solid and of a pleasing nutty flavor, . . . . .	.10	.30	3.00	
Golden Plume.—Popular Golden self-blanching, . . . . .	.40	1.00	12.00	
Winter Queen.—One of the best winter varieties, . . . . .	.10	.30	3.00	
Giant Pascal.—Second, early crisp, fine quality, . . . . .	.10	.25	3.00	
Easy Blanching.—White, solid, easily bleached, . . . . .	.20	.45	5.00	



## CARROT

Carrots thrive best in rather light loam; soil should be well cultivated and well fertilized. Plant in rows 14 inches apart, and thin plants to 3 to 5 inches in the rows. Plant from the middle of April to the middle of May.

One ounce will sow 100 feet of drill. 3 to 4 pounds to one acre.

	Per pkt.	Per oz.	Per lb.
<b>Early Scarlet Horn.</b> —An early short variety for forcing, excellent for table, color deep orange, . . . . .	.10	.15	\$1.00
<b>Early Half Long Nantes.</b> —Stump-rooted, coreless, red color, . . . . .	.10	.15	1.00
<b>Chantenay.</b> —A half-long, one of the finest for table use, . . . . .	.10	.15	1.00
<b>Danvers Half Long.</b> —A most desirable variety, great keeper, . . . . .	.10	.15	1.00
<b>Hutchinson.</b> —Large stump rooted, selected stock, . . . . .	.10	.20	2.00
<b>Improved Long Orange.</b> —A large long rooted variety, for stock purposes, . . . . .	.10	.20	1.00
<b>White Belgian.</b> —Large, white, productive, for stock, . . . . .	.10	.20	1.00

## CAULIFLOWER

Is one of the most delicious varieties of the Cabbage family. Requires a rich deep soil, a low moist situation being desirable. Plants should be set in rows about 2 feet apart and 18 inches between the plants.

One ounce will sow a bed of 40 square feet and produce about 2,000 plants.

	Per pkt.	Per 1/2 oz.	Per oz.
<b>Henderson's Snowball.</b> —This ranks extremely high among the early varieties, it is a reliable header of good size and of rich white color, . . . . .	.20	.75	\$1.75
<b>Erfurt Early Dwarf.</b> —A good variety, . . . . .	.20	.75	1.75
<b>Early Paris.</b> —A standard early variety, . . . . .	.10	.50	1.50

## CORN—Field

(Prices subject to market changes.)

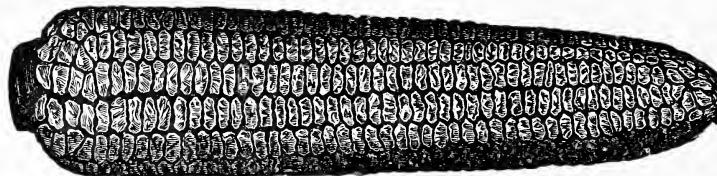
<b>Central Pennsylvania.</b> —A popular ensilage variety, . . . . .	at market prices.
<b>Eureka.</b> —A well known ensilage variety of White Corn. Very leafy, of extra large growth, and we believe will produce more tons of silage than any other variety. For Ensilage only, . . . . .	
<b>Leaming's Early Dent.</b> —A very popular Dent Corn, grown for both grain and Ensilage. This variety will mature in this latitude, . . . . .	
<b>Mastodon Early.</b> —Large, free growing, very productive, . . . . .	
<b>Early Yellow Dent.</b> —Connecticut grown, a dent corn that will mature in this latitude, . . . . .	
<b>Longfellow.</b> —A yellow flint corn, a well and favorably known variety, . . . . .	
<b>8 Row Yellow Flint.</b> —A blue ribbon corn, grown seed, . . . . .	

## CORN—Sweet

Requires a rich warm soil. For early varieties plant when ground has become well warmed; successive plantings may be continued until July. Plant in hills from 3 to 3½ feet apart, according to the height of variety.

One quart will plant 200 hills; 8 quarts for one acre in hills.

		Per lb.	5 lb. Per lb.	15 lb. Per lb.	5 lb. Per lb.
<b>Columbia.</b> —Earliest white variety, . . . . .	•	• \$0.30	• \$0.25	• \$0.22	
<b>Whipple's White.</b> —Early and good quality, . . . . .	•	• .30	• .25	• .22	
<b>Howling Mob.</b> —Excellent quality early large ears, . . . . .	•	• .30	• .25	• .22	
<b>New Champion.</b> —Fine early quality with large ears, . . . . .	•	• .30	• .25	• .22	
<b>Crosby's Early.</b> —An old favorite, early and of excellent quality, . . . . .	•	• .30	• .25	• .22	
<b>Long Island Beauty.</b> —Large late and one of the best, . . . . .	•	• .30	• .25	• .22	
<b>Mammoth Sugar.</b> —Extra large sweet variety, of good quality, . . . . .	•	• .30	• .25	• .22	
<b>Evergreen.</b> —A standard late variety, . . . . .	•	• .30	• .25	• .22	
<b>Black Mexican.</b> —An early, tender corn of fine flavor, . . . . .	•	• .35	• .28	• .25	



Whipple's Yellow.

<b>Extra Early Golden</b> —10 days earlier than Golden Bantam, best extra early yellow, . . . . .	•	• .35	• .30	• .25	
<b>Golden Sunshine.</b> —Week earlier than Golden Bantam, . . . . .	•	• .35	• .28	• .25	
<b>Golden Bantam.</b> —A yellow sweet corn, extra early and extra hardy, very tender and sweet, . . . . .	•	• .30	• .25	• .22	
<b>Whipple's Yellow.</b> —Early as golden bantam but much larger, fine quality, . . . . .	•	• .30	• .25	• .22	
<b>Golden Giant.</b> —Cross between Golden Bantam and Howling Mob, . . . . .	•	• .30	• .25	• .22	
<b>Bantam Evergreen.</b> —Yellow, medium early, large size, . . . . .	•	• .30	• .25	• .22	

**Use O. & W. Complete Market Garden Fertilizer for Corn**

## CRESS

To be planted in drills and sown quite thickly, on good rich ground, in early spring.

One ounce of seed will plant 100 feet of drill.

Per pkt.	Per oz.	Per lb.
\$0.10	\$0.15	\$0.75

**Curled.**— . . . . .

## CUCUMBER

First planting should be made in May when ground is dry and warm, in hills about 4 feet apart; thin out to 3 to 4 plants to the hill when established. For pickles plant during the last two weeks in June.

One ounce will plant 50 hills; two pounds for one acre.



### Improved Early White Spine.

	Per pkt.	Per oz.	Per lb.
<b>Early Cluster.</b> —Bears in clusters, early and productive, .	.10	.15	.10
<b>Early Russian.</b> —The earliest variety, about 4 inches long, .	.10	.15	.00
<b>Snow Pickling.</b> —One of the best pickling, .	.10	.15	.00
<b>Green Prolific.</b> —The very best pickling sort, .	.10	.15	.00
<b>Boston Pickling.</b> —Produces an abundant crop of dark green color, .	.10	.15	.00
<b>Improved Early White Spine.</b> —A standard variety of uniform good size and color, .	.10	.15	.00
<b>Early Fortune.</b> —Excellent for slicing or Pickling, .	.10	.15	.00
<b>Davis Perfect.</b> —Dark green, good length, popular, .	.10	.15	.25
<b>Improved Long Green</b> —A large and late variety, .	.10	.15	.25

## DANDELION

Sow in May in drills 12 inches apart, covering seeds about one-half inch deep. Cultivate to keep down weeds during summer and the following spring leaves will be suitable for cutting. Must be covered in winter to protect from frost.

One ounce for 100 feet of drill. One pound for one acre.

	Per pkt.	Per oz.	Per lb.
<b>Improved Thick-Leaved.</b> —Standard sort, very productive, .	.20	.60	.70
<b>French Garden.</b> — .	.10	.35	.25

## DILL

	Per pkt.	Per oz.	Per lb.
<b>Mammoth or Long Island.</b> — .	.10	.15	.75

## EGG PLANT

Plant the seed in hot beds early in spring. Transplant when two inches high into another bed, or small pots. Plant in garden when weather is settled and warm. Should be placed about 3 feet apart, and well watered for 2 or 3 days, until they show signs of being rooted.

	Per pkt.	Per oz.
<b>New York Improved Purple.</b> —The leading market variety, excellent and very productive, .	.15	.50
<b>Black Beauty.</b> —Early, fruit black, round and solid, .	.15	.50

## ENDIVE

For early use, sow as soon as ground can be worked in drills fifteen inches apart; thin plants to six inches in the row. Any ordinary soil will do, but a moist place is preferred. To blanch the leaves, gather them together when dry and tie with matting or cover with ordinary flower pots inverted.

One ounce will produce about 3000 plants.

			Per pkt.	Per oz.	Per lb.
<b>Green Curled.</b> —A standard sort,	.	.	.	\$0.10	\$0.15
<b>Moss Curled.</b> —Very ornamental,	.	.	.	.10	.15
<b>Batavia Escarolle.</b> —	.	.	.	.10	.15

## KALE or German Greens

Plant the larger varieties in hills two by three feet apart and thin to one plant to the hill. Requires deep, rich soil. Set out plants in June and treat in same manner as for cabbage.

One ounce will produce 2,000 plants.

			Per pkt.	Per oz.	Per lb.
<b>Green Curled Scotch.</b> —Leaves of bright green, very tender and closely curled,	.	.	.	\$0.10	\$0.15
<b>German Greens.</b> —To be sown in fall for spring use,	.	.	.10	.15	.15

## KOHL RABI

An intermediate vegetable between the cabbage and turnip. Prepare as for cabbage. Sow in April in rows 18 inches apart and thin out to 8 inches apart.

One ounce gives 3,000 plants.

			Per pkt.	Per oz.	Per lb.
<b>Early White Vienna.</b> —A standard early,	.	.	.10	.20	\$2.00
<b>Early Purple Vienna.</b> —Very large and productive,	.	.	.10	.20	2.00

## LEEK

Sow the seeds in April and transplant in July to rows 15 inches apart and 8 inches between plants.

One ounce will grow 1,000 plants.

			Per pkt.	Per oz.	Per lb.
<b>American Flag.</b> —A hardy and profitable sort, excellent for winter use,	.	.	.10	.20	\$2.00

While we exercise the greatest care to have all seeds pure and reliable, we do not give any warranty, express or implied, and will not be in any way responsible for the crop.



Boston Market.

## LETTUCE

Lettuce needs a rich and moist soil, should be sown in rows about 12 inches apart and the plants thinned to 10 inches apart for the heading varieties. When not grown for head they may be sown broadcast. The more rapid the growth, the better the quality.

One ounce for 3,000 plants.

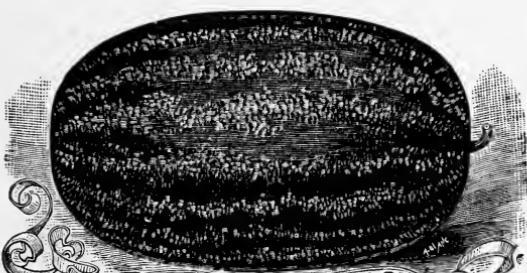
	Per pkt.	Per oz.	Per lb.
<b>May King.</b> —Medium size, early, good heading, a popular sort, . . . . .	\$0.10	\$0.20	\$1.50
<b>Early Curled Silesia.</b> —Sweet, early, good variety, . . . . .	.10	.20	1.50
<b>Early Simpson.</b> —Early, compact mass of tender leaves, . . . . .	.10	.20	1.50
<b>Black-Seeded Simpson.</b> —Large light-colored head variety, . . . . .	.10	.20	1.50
<b>Boston Market.</b> —Early, small heads, very hardy, . . . . .	.10	.20	1.50
<b>Hanson.</b> —Large, solid, crisp head, one of the best outdoor sorts, . . . . .	.10	.20	1.50
<b>True Iceberg.</b> —Light green heads, . . . . .	.10	.25	2.00
<b>Tennis-Ball Black Seeded.</b> —Excellent for early large heads, . . . . .	.10	.20	1.50
<b>Tomhannock.</b> —One of the best varieties for broadcast cultivation, leaves slightly bronzed, . . . . .	.10	.20	1.50
<b>Crisp as Ice.</b> (Bronzed) a fine bronze leaf lettuce, . . . . .	.10	.20	1.50
<b>New York</b> —Head lettuce, commonly called Iceberg, . . . . .	.10	.25	2.00
<b>Big Boston.</b> —A head lettuce, for forcing or open culture, . . . . .	.10	.20	1.50
<b>Cos or Romaine.</b> — . . . . .	.10	.20	1.50

## MUSTARD

Sow from April to June in drills one foot apart and cover seed lightly. Used principally for salads.

	Per oz.	Per $\frac{1}{4}$ lb.	Per lb.
<b>White or English.</b> —For salad or medicinal purposes, . . . . .	\$0.10	\$0.20	\$0.45
<b>Brown.</b> —More pungent than white, . . . . .	.10	.25	.75

## MELON—Water

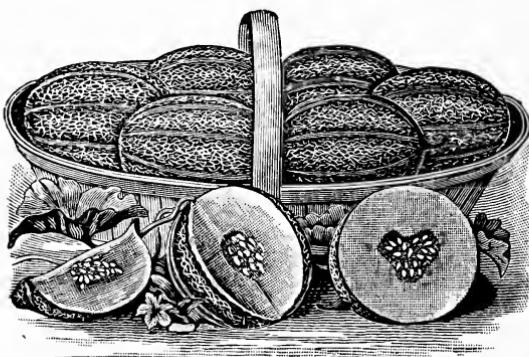


Ice Cream.

A warm light sandy loam preferred. Being tender should not be planted before middle of May. Plant in hills 5 to 6 feet apart each way for the musk varieties and 8 feet apart for the water. Cover seeds about one-half inch deep and when well started thin out to 3 plants in a hill. One ounce will plant about 15 hills; 4 pounds to the acre.

	Per pkt.	Per oz.	Per lb.
<b>Cole's Early.</b> —Round, striped, delicious flavor, red flesh, good size, . . . . .	\$0.10	\$0.15	\$1.00

	Per pkt.	Per oz.	Per lb.
<b>Kleckley's Sweet.</b> —Oblong in form, dark green, thin rimmed, flesh bright scarlet, white seed, sweetest of all, . . . . .	\$0.10	\$0.15	\$1.00
<b>Mountain Sweet.</b> —An old standard variety, early and solid, . . . . .	.10	.15	1.00
<b>Phinney's Early.</b> —Early, reliable, red fleshed, productive, . . . . .	.10	.15	1.00
<b>Ice Cream.</b> —White seeds, medium size, solid fine flavor, one of the most popular varieties grown, . . . . .	.10	.15	1.00
<b>Kolb's Gem.</b> —Flesh bright red, almost round, grows large, very choice, . . . . .	.10	.15	1.00
<b>Citron for Preserves.</b> — . . . . .	.10	.15	1.00



Rocky Ford Melon.

## MELON—Musk

One ounce will plant 80 hills; 2 to 3 pounds for one acre.

While we exercise the greatest care to have all seeds pure and reliable, we do not give any warranty, express or implied, and will not be in any way responsible for the crop.

	Per pkt.	Per oz.	Per lb.
<b>Hackensack.</b> —Large, productive and good flavor, green fleshed, . . . . .	\$0.10	\$0.15	\$1.25
<b>Rocky Ford.</b> —A very popular variety, flesh light green, sweet and delicate flavor, . . . . .	.10	.15	1.25
<b>Bender's Surprise.</b> —Large, slightly oval, good quality, pink flesh, . . . . .	.10	.20	1.75
<b>Hearts of Gold.</b> —Round medium early, pink flesh, . . . . .	.10	.15	1.25
<b>Miller's Cream.</b> —Thick meated and salmon colored flesh, delicious, . . . . .	.10	.20	1.35
<b>Paul Rose.</b> —An extra quality, salmon flesh, medium size, . . . . .	.10	.15	1.25
<b>Emerald Gem.</b> —Small, but prolific, yellow meated, superior quality, . . . . .	.10	.15	1.25
<b>“Lake Champlain.”</b> —Improved Emerald Gem, . . . . .	.10	.15	1.25
<b>Osage, Salmon Fleshed.</b> —A deliciously sweet melon of fine flavor, . . . . .	.10	.15	1.75

## NASTURTIUM

Cultivated for both use and ornament. Young seeds may be used as capers and leaves for salad purposes. The beautiful flowers, blooming freely all summer add a charm to the garden and lawn. Plant in May.

	Per pkt.	Per oz.	Per $\frac{1}{4}$ lb.
<b>Tall.</b> —An ornamental climber, . . . . .	\$0.10	\$0.15	\$0.40
<b>Dwarf.</b> —Fine for borders and beds, . . . . .	.10	.15	.40

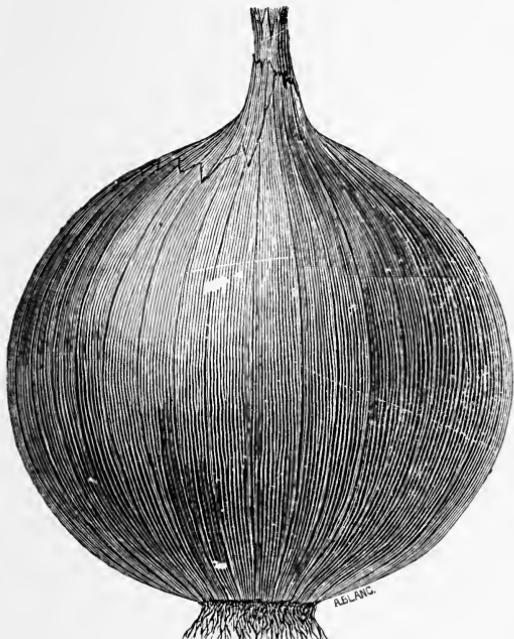
## OKRA

Plant in rows 2 feet apart, thinning plants to 1 foot apart in the row.

	Per pkt.	Per oz.	Per lb.
Dwarf Green.—Early and productive,	.10	.15	.75

## ONION

(Strictly new seed—Prices subject to change.)



Southport Red Globe.

The onion thrives best in deep, loamy soil, well fertilized. Sow the seeds thinly in drills 1 foot apart. Cover seeds about  $\frac{1}{4}$  inch, roll and tread soil down solidly. When 3 inches high, thin out to 3 inches apart. Cultivate well and keep out weeds.

One ounce seed will sow 100 feet of drill. Six pounds for one acre.

	Per pkt.	Per oz.	Per lb.
Extra Early Red.—Early, of flat shape, mild,	.10	.25	.25
Wethersfield Large Red.—A large yielder, excellent to keep,	.10	.20	2.00
Southport Red Globe.—Finest large red sort,	.10	.25	2.00
Southport Yellow Globe.—Handsome and late variety,	.10	.20	1.75
Southport White Globe.—Early, mild flavored, large, not a good keeper,	.15	.25	3.00
Yellow Globe Danvers.—One of the superior yellow globe varieties,	.10	.20	1.75
White Portugal.—Excellent for pickling, should be sown thick,	.10	.25	2.50
Prize Taker.—Yellow skin, white flesh, good cropper, large size,	.10	.25	2.50
Japanese or Ebenezer.—(For growing sets),	.10	.20	1.75

### O. & W. Complete Market Garden Fertilizer.

A fertilizer that will produce remarkable crops. Used by many of the best growers in Massachusetts and Connecticut.

## ONION SETS

Should be planted as early as the ground can be worked in rows 12 inches apart. Set each about 3 inches apart. When onions are grown from sets they can be used in the green state in June, or will ripen by July.

Red . . . . .	White . . . . .	Yellow . . . . .	at market prices.	

## PARSLEY

Sow early in spring in drills 1 foot apart, covering lightly; thin out the plants to 3 to 4 inches apart; used for flavoring and garnishing. A single row forms a good edging for flower-beds or walks.

		Per pkt.	Per oz.	Per lb.
<b>Moss Curled.</b> —Very ornamental and productive, . . .		\$0.10	\$0.15	\$1.00
<b>Curled, or Doubled.</b> —A most beautiful variety, moss-like leaves of handsome bright green color, . . .	.10	.15	1.00	
<b>"Plain" Leaved.</b> —(Not curled), . . .	.10	.15	.85	
<b>Hamburg.</b> —Turnip rooted, . . .	.10	.15	1.00	

## PARSNIP

Make the soil very fine and plant the seed very early, in rows eighteen inches apart, thinning plants to three or five inches in the rows; seeds should be covered about one-half inch deep.

Parsnips, aside from table use, have great value for stock-feeding purposes. Are improved by allowing to remain in open ground through the winter.

One ounce to 150 feet of drill; five pounds for one acre.

		Per pkt.	Per oz.	Per lb.
<b>Ideal Hollow Crown.</b> —A great cropper, tender and sweet, . . . . .	\$0.10	\$0.15	\$0.75	
<b>Long Smooth White.</b> —One of the best for general cultivation, . . . . .	.10	.15	.75	

## PEAS

The wrinkled varieties, while the sweetest of all peas, are more liable to rot, being tender, and need to be planted thicker and later than the round, hard sorts. Soil needs to be well manured. Have the dwarf varieties in rows two and one-half feet apart; those kinds growing two to three feet high, in rows three feet apart, and the tallest in rows four feet apart. The smooth varieties may be sown as soon as ground can be worked; the wrinkled sorts when soil is well warmed.

One quart to 100 feet of drill; one and one-half bushels to an acre.



Carter's Premium Gem.

	Per lb.	5 lb. lots	Lots of 15 lb.
<b>East Hartford Extra Early.</b> —True stock, 2½ feet, best early variety in the market, smooth variety . . .	\$0.30	\$0.25	\$0.20

		Per lb.	5 lb. lot	15 lb. lot	Per lb.
<b>Alaska.</b> —Hard, blue pea, 2½ feet, extra early, . . . . .		\$0.30	\$0.25	\$0.20	
<b>Gradus, or Prosperity.</b> —An extra early wrinkled pea, very large pods, of magnificent quality, . . . . .		.35	.25	.22	
<b>Nott's Excelsior.</b> —A wrinkled dwarf, of excellent variety, early, . . . . .		.30	.25	.22	
<b>Sutton's Excelsior.</b> —Similar to Nott's Excelsior, but producing larger and more abundant pods, . . . . .		.30	.25	.22	
<b>Daisy or Dwarf Telephone.</b> —Dwarf habit, wrinkled, large pods, second early, . . . . .		.30	.25	.22	
<b>Thomas Laxton.</b> —Of similar growth to Gradus, a few days later, pods are deep rich green. In the judgment of many the Thomas Laxton is even sweeter and finer flavor than Gradus, . . . . .		.30	.25	.22	
<b>Telephone.</b> —Four feet high, large peas of rich, sugary flavor, . . . . .		.30	.25	.22	
<b>Champion of England.</b> —An old standard variety, late, five feet high, . . . . .		.30	.25	.22	
<b>Laxtonian.</b> —Large dark green pod, best early dwarf, . . . . .		.35	.25	.22	
<b>Canada Field.</b> —For stock purposes, (60 lbs. to the bushel,) . . . . .					at market price

## PEPPER

Should be started in hot beds, and transplanted into open ground by end of May; set in rows eighteen inches apart and plants about twelve inches apart in the rows.

One ounce of seed will produce about 3,000 plants.

		Per pkt.	Per oz.
<b>Sweet Mountain.</b> —Largely grown for both market and home use, . . . . .		\$0.10	\$0.40
<b>Bull Nose.</b> —This has long been the standard hot sort, . . . . .		.10	.40
<b>Ruby King.</b> —Most popular large red pepper in cultivation, . . . . .		.10	.40
<b>Large Squash.</b> —Thick fleshed, early hot variety, . . . . .		.10	.40
<b>Long Red Cayenne.</b> —The true Cayenne, hot and pungent, . . . . .		.10	.40
<b>Small Red Cherry.</b> —A small smooth and round variety; productive, . . . . .		.10	.40
<b>World Beater.</b> —Large mild, very prolific, . . . . .		.10	.40
<b>Chinese Giant.</b> —Large mild, . . . . .		.15	.60
<b>California Wonder.</b> —(New) Large size, thick shell, mild, . . . . .		.15	.60

While we exercise the greatest care to have all seeds pure and reliable, we do not give any warranty, express or implied, and will not be in any way responsible for the crop.

## PUMPKIN

To be cultivated in same manner as squash.	Per oz.	Per lb.
Small Yellow Sugar.—A handsome prolific variety, good keeper, best for pies, . . . . .	.15	\$1.00
Large Cheese.—Very large and good keeping variety, . . . . .	.15	1.00
Connecticut Yellow Field.—Grown largely for stock purposes, . . . . .	.10	.85

## POTATOES—Northern Grown

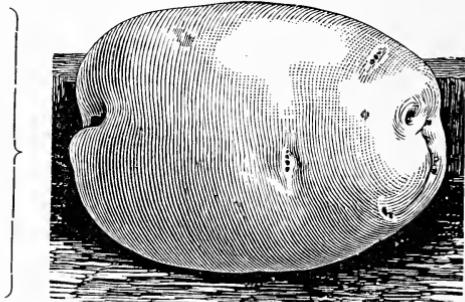
(MAINE and PRINCE EDWARD ISLAND CERTIFIED)

Use 12 to 15 bushels, or 5 barrels per acre. (See pages 34 and 35 for description of varieties.)

We offer only certified seed and the varieties listed below are the only varieties that are certified in Maine.

Here in Conn. nearly all markets demand Green Mountains for winter stock. This is the variety that agricultural authorities are always trying to improve and we believe it to be the best variety grown.

Irish Cobbler  
Green Mountain  
(Improved)  
at Lowest Market  
Prices.



Deep Scarlet Turnip.

Early Scarlet Turnip.—Round red with white tip, . . . . .

## RADISH

For early use sow in spring as soon as ground can be worked. Sow in drills six to ten inches apart and thin out to one inch apart in the rows; as the roots are more tender and brittle when grown quickly, a rich light soil is preferred. For a succession sow every two weeks.

One ounce will sow 100 feet of drill; eight pounds for one acre.

Per pkt.	Per oz.	Per lb.
.10	.15	\$1.00

	Per pkt.	Per oz.	Per lb.
<b>Deep Scarlet Turnip.</b> —An all red standard variety, . . . . .	\$.10	\$.15	\$1.00
<b>Early Long Scarlet, Short Top.</b> —The standard early long variety, . . . . .	.10	.15	1.00
<b>French Breakfast.</b> —Most popular variety, of olive shape, red with white tip, quick growing, . . . . .	.10	.15	1.00
<b>Scarlet Globe.</b> —One of the best; quite early, very crisp, . . . . .	.10	.15	1.00
<b>White Turnip.</b> —For summer and winter use, . . . . .	.10	.15	1.00
<b>Black Spanish Long.</b> —Black skin, white flesh—a winter variety, . . . . .	.10	.15	1.00
<b>Round Black Spanish.</b> —The favorite German winter radish, . . . . .	.10	.15	1.00
<b>Rose Color China Winter.</b> —Grows large and tender, good for winter use, . . . . .	.10	.15	1.00

## RHUBARB

Propagate from roots in richly prepared soil. Plants should be set five feet apart.

<b>Victoria Giant</b> — . . . . .	\$.25	a root
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## SALSIFY, or Vegetable Oyster

Sow early in spring in light rich soil in drills fourteen inches apart and thin out to three inches apart in the row. The roots will be ready for use in October. When cooked the flavor resembles the oyster.

	Per pkt.	Per oz.	Per lb.
<b>Sandwich Island Mammoth.</b> —This variety grows to an unusually large size, roots tender and good flavor, . . . . .	\$.10	\$.25	\$.25

## SPINACH

For very early spring use sow in August, for summer use sow in early spring, in drills about ten or twelve inches apart, covering the seed one inch deep. To obtain a succession sow at intervals of two weeks through the season. One ounce to 100 feet of drill, 10 pounds to one acre.

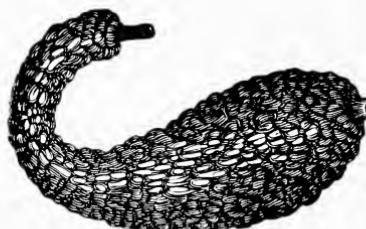
	Per oz.	Per $\frac{1}{4}$ lb.	Per lb.
<b>Savoy Leaved.</b> —Early, wrinkled and hardy, reselected, . . . . .	\$.10	\$.20	\$.40
<b>Round Thick Leaf.</b> —Produces dark thick leaves, somewhat crumpled, . . . . .	.10	.20	.40
<b>Large Viroflay.</b> —Grows extra large size, reselected, . . . . .	.10	.20	.40
<b>Princess Juliana.</b> —Improved long season one of the best summer spinach, . . . . .	.10	.20	.40
<b>King of Denmark.</b> —Summer spinach, . . . . .	.10	.20	.40
<b>New Zealand.</b> —A very productive spreading plant, . . . . .	.15	.25	1.00
<b>Nobel Giant Leaved</b> . . . . .	.10	.25	.40

Ask for prices in larger quantities.

## SQUASH

Requires rich, warm soil. Plant in hills nine to ten feet apart for running varieties, and five or six feet apart for bush sorts. Leave two or three plants to a hill. Cultivate frequently.

One ounce will sow twenty to forty hills; two to four lbs. per acre.



Summer Crookneck.

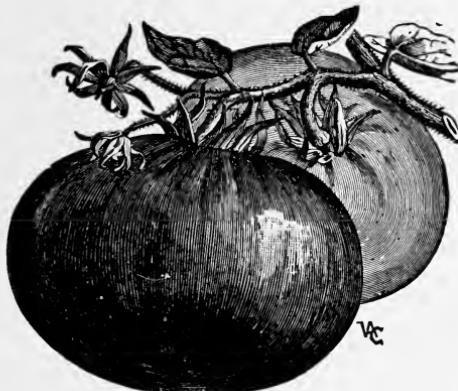
	Per pkt.	Per oz.	Per lb.
<b>Giant Summer Straightneck.</b> — . . . .	\$0.10	\$0.20	\$2.00
<b>Early Summer Crookneck.</b> —The finest bush variety, . . . .	.10	.15	1.00
<b>Giant Summer Crookneck.</b> —Larger than the early summer, . . . .	.10	.15	1.20
<b>Early White Bush Scallop.</b> —Matures early and bears continuously, . . . .	.10	.15	1.00



Hubbard Squash.

<b>Hubbard.</b> —The well known and most popular winter squash, . . . . .	.10	.20	1.40
<b>Boston Marrow.</b> —A bright orange colored squash for autumn, very productive, . . . . .	.10	.15	1.00
<b>Mammoth Chili.</b> —Extra large, grows upwards 100 pounds at times, . . . . .	.10	.15	1.50
<b>Golden Hubbard.</b> —Similar to the standard Hubbard but smaller and earlier and of a golden red color, . . . .	.10	.15	1.50
<b>Cocozelle.</b> —Compact bush growth, fruit oblong, foot or more in length, skin dark green with stripe, . . . .	.10	.20	1.50
<b>Blue Hubbard.</b> —Popular variety, . . . . .	.10	.20	1.75
<b>Table Queen.</b> —Fine for baking, . . . . .	.10	.20	2.00

## TOMATO



Livingston's Beauty.

Sow the seed in March or April in hot bed. Transplant when plants are five inches high to open ground, after danger from frost has passed. Should be set four feet apart each way, on mounds of earth, to allow foliage to open and sun to reach the fruit.

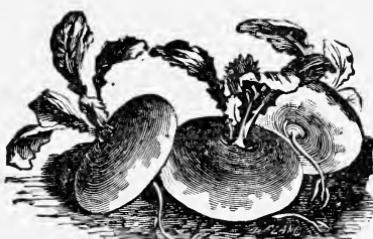
While we exercise the greatest care to have all seeds pure and reliable, we do not give any warranty, express or implied, and will not be in any way responsible for the crop.

	Per pkt.	Per oz.	Per $\frac{1}{4}$ lb.
<b>Spark's Earliana.</b> —The earliest large red grown, exceedingly productive, . . . . .	.10	.30	\$1.00
<b>Bonnie Best.</b> —Very early, vigorous grower, smooth, brilliant, scarlet fruit, very prolific, . . . . .	.10	.35	1.25
<b>Marglobe.</b> —(New) Midseason globe shaped scarlet, . . . . .	.15	.60	2.00
<b>Livingston's New Stone.</b> —Large, smooth, solid, scarlet color, . . . . .	.10	.30	1.00
<b>Acme.</b> —A standard variety, round, bright pink in color, . . . . .	.10	.30	1.00
<b>Ponderosa.</b> —Largest variety grown, . . . . .	.15	.60	2.00
<b>New Dwarf Champion.</b> —Most popular of dwarf varieties, fruit deep purplish red, . . . . .	.10	.40	1.40
<b>Yellow Plum.</b> —Small, elegant, fine for preserves, . . . . .	.15	.60	2.00

## TURNIP

For early varieties sow as soon as the ground can be worked in spring.

For fall and winter use, seed should be sown from the middle of July to middle of August, seed generally sown broadcast, using one pound to the acre.



Early Flat Dutch.

	Per oz.	pkt.	Per $\frac{1}{4}$ lb.	Per lb.
<b>Early Purple Top Milan.</b> —Finest early, . . . . .	.15		.35	\$1.00
<b>Early Flat Dutch White.</b> —A popular market variety, . . . . .	.10		.25	.65
<b>Purple Top Strap Leaf.</b> —One of the standard flat varieties, . . . . .	.10		.25	.65
<b>Yellow Globe.</b> —Fine for table use, fall and winter, . . . . .	.10		.25	.65

		Per oz. pkt.	Per $\frac{1}{4}$ lb.	Per lb.
Golden Ball.—Very tender, fine flavored,	.	\$.10	\$.25	\$.65
White Egg.—Handsome, oval form, thin skin,	.	.10	.25	.65
Cow Horn.—Pure white, except at top,	.	.10	.25	.65
Purple Top White Globe.—A thick, round, quick growing variety,	.	.10	.25	.65

## RUTA-BAGA

Seed should be sown in drills thirty inches apart, thin out to one foot apart in the row.

		Per oz. pkt.	Per $\frac{1}{4}$ lb.	Per lb.
American Purple Top Swede.—Flesh deep yellow, free growing,	.	\$.10	\$.25	\$.90
White Rock or Sweet German.—White and sweet, a good keeper,	.	.10	.25	.90
Long Island Purple Top.—Yellow turnip of best quality,	.	.10	.25	.90

## HERBS

		Per pkt.	Per oz.
Summer Savory,	.	\$.10	\$.50
Sage,	.	.10	.40
Sweet Marjoram,	.	.10	.50
Thyme,	.	.10	.50
Dill,	.	.10	.20

## SWEET PEAS

	Per pkt.	Per oz.	Per $\frac{1}{4}$ lb.	Per lb.
Spencer Mixed, large flower with long stem,	.	\$.10	\$.15	\$.45

## TOBACCO

We are very careful in the selection of our tobacco seed, growing much of it on our own farm and saving the seed from only such plants as bear the correct type of leaf. We buy only of the most reputable growers. This seed is thoroughly blown which removes all the light seed, as we believe the heavier seed makes the strongest plants.

	Per $\frac{1}{4}$ oz.	Per oz.	Per lb.
Willow Brook Broadleaf.—Specially grown and selected,	\$.25	\$.50	\$.70
John Williams' Broad Leaf,	.25	.50	7.00
Havana. Special selected type, round point leaf, very choice,	.25	.50	7.00
Cuban Type, shade grown,	.40	.75	9.00
Round Tip, (not Havana)	.40	.75	9.00

While we exercise the greatest care to have all seeds pure and reliable, we do not give any warranty, express or implied, and will not be in any way responsible for the crop.

**It Pays to use  
OUR COMPLETE FERTILIZER  
FOR THE TOBACCO CROP.**



A very fine crop of Broadleaf Tobacco grown on O. & W. Fertilizer  
by Frank Dowd, Ellington, Conn.



Havana Tobacco grown on O. & W. Complete Tobacco Fertilizer  
by James Karakula, Suffield, Conn.

# How to Make a Better Lawn

Building for permanence requires the use of *good lawn seed*, but even the best of seed must have a fair chance. Neglect of proper preparation of the seed bed may not show the first few months, but sooner or later will make it necessary to do the whole job over again. Start right — prepare the soil well — *sow good seed* — and have a good lawn — from now on.

## Re-Seeding

Every lawn, regardless of how thick the sod may be, is benefited by a light seeding Spring and Fall. Sow about half the quantity recommended for a new lawn. This is particularly advisable in the Fall which is Nature's seeding time. Bare spots should be dug up, fertilized and re-seeded. Thin spots may be scratched up with an iron rake, seeded, top dressed and rolled.

## Choice of Seed

A good lawn grass mixture should be composed of nothing but true turf grasses in the right proportions, carefully recleaned to remove dirt, chaff and weed seeds as much as possible. Avoid mixtures containing cheap grasses which do not belong in a lawn. The cost of the seed is the smallest item in the making of a good lawn; it pays to choose good seed.

## Sowing

Use plenty of seed. Remember a thick grass sod is the best protection against weeds. To insure even distribution, which is important, divide the seed in half and go over the ground twice, making the second sowing at right angles to the first. Sow on a calm day so the wind will not blow the seed.

## O. & W. Lawn Grass Mixture

Is composed exclusively of the best seeds of the choicest fine bladed grasses free from weeds. Sow a pound to every 200 sq. ft. (equals a space ten by twenty feet) double the quantity may be used without harm.

Price per lb. 35¢., 5 lb. sacks \$1.50, 50 lb. sacks \$14.00, 100 lb. lots 26¢. per lb.



## Shady Places

In spots shaded by trees or buildings, give special attention to fertilizing and watering and sow a special shady place grass mixture. Remember that trees and shrubbery draw heavily on the food and water in the soil, so extra quantities of both must be provided to keep the grass supplied.

## Shady Spot Lawn Grass Seed

Price per lb. package 60¢., 5 lb. bag, \$2.50.



## Liberty Lawn Grass Seed

Price per lb. 40¢., 2 lbs. 75¢., 5 lbs. \$1.75, 10 lbs. \$3.50, 50 lbs. \$16.00, 100 lbs. \$30.00.

## Evergreen Lawn Grass Seed

Price per lb. package 45¢., 5 lb. bag, \$2.00, 50 lb. bags, \$18.50, 100 lb. bags, \$35.00.

# O. & W. Special Lawn Fertilizer

## For Spring and Early Summer Treatment

To maintain a luxuriant lawn, proper fertilizing is necessary.

The old method of applying stable manure, so objectionable because it carries weed seeds as well as being unsightly and odorous, is no longer practiced. We manufacture a lawn dressing carrying all the essential plant foods so necessary to produce luxuriant growth and dark, rich, green color so much desired.

We recommend for lawns that it be used at rate of 100 lbs. for 5,000 sq. ft.

### PRICES (Delivered):

100 lbs.	50 lbs.	25 lbs.	10 lbs.	5 lbs.
\$3.50	\$1.90	\$1.25	\$0.75	\$0.40

Special prices on larger quantities.

## We also have for Lawns and Gardens:

	100 lbs.	50 lbs.	25 lbs.	10 lbs.	5 lbs.
O. & W. Special Garden Fertilizer	\$3.50	\$1.90	\$1.25	\$0.75	\$0.40
Bone Meal	3.50	2.00	1.35	.75	.40
Sheep Manure	3.25	1.85	1.00	.70	.40
Floranid (Urea)		8.00	4.50	2.50	1.50
Nitrate of Soda	4.75	2.75	1.50	.75	.40
Hard Wood Ashes	3.00	1.75	1.15	.65	.35
Lime	1.50	.90	.60	.40	.25
Tobacco Dust	4.00	2.25	1.50	.75	.45
Tobacco Stems		2.00			
Alphano Humus		1.50			

Special Prices on larger quantities.

### Imported Granulated Peat Moss (Turf Mull)

A plant requires as much as 95% of moisture for its growth, and there is no better medium to supply this, than peat moss. The high absorbing quality of peat moss retains at the same time the fertilizing properties of all commercial or natural fertilizers, manures and plant food.

Peat moss comes in bales (20 x 22 x 40") which contains about 20 bu. One bale will cover about 250 sq. ft. 1" deep.

Price per bale \$3.75.

5 bale lots \$3.50 each



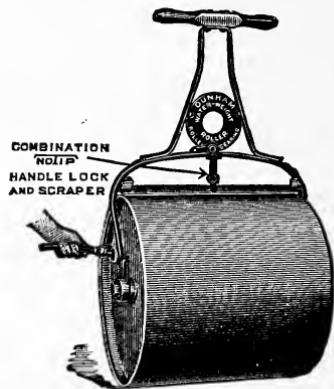
1 lb. can	\$0.25
5 lb. can	.50
10 lb. bag	.85
25 lb. bag	1.75
50 lb. bag	3.25
100 lb. bag	6.00

Loma is odorless, clean — many times more powerful than barnyard manures. So easy to apply. It is sown over the lawn like grass seed — then wet down. That's all there is to it. A 5-pound package fertilizes a 10 ft. x 10 ft. plot.

## Water Weight Lawn Rollers

At least one rolling a year is necessary to preserve a healthy turf. This should be done early in the spring, as soon as the ground is dry, to re-firm the soil about the roots after it has been loosened and heaved up by the freezing and thawing of winter. The roller should weigh 150 to 300 pounds, depending on the texture of the soil.

The water weight lawn roller has almost entirely superseded the old fashioned cast iron roller. By regulating the amount of water it can be made to weigh as desired.



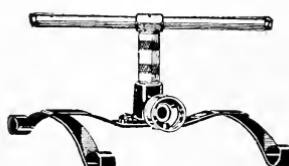
No.	Diameter	Width of Drum	Weight Empty	Weight Full	Net Price
605	14"	24"	68 lbs.	175 lbs.	\$13.50
606	18"	24"	82 "	265 "	16.00
603	24"	24"	110 "	420 "	22.00

## The Pennsylvania Ball Bearing Lawn Trimmer

This meets the demand for a serviceable tool to take the place of grass shears and other devices for cutting the grass left at the edge of lawns after mowing. The Trimmer will cut within three-eighths of an inch of wall or tree trunk and mow any border wide enough to run one wheel on. Its construction is similar to all the other Pennsylvania products—Crucible Tool Steel in both cylinder and stationary blades. Self-sharpening. Ball bearings with patented Pennsylvania adjustment. Built for service and long life. Light running. Easy to handle. Price \$10.50 net.



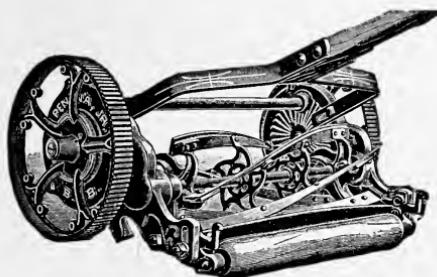
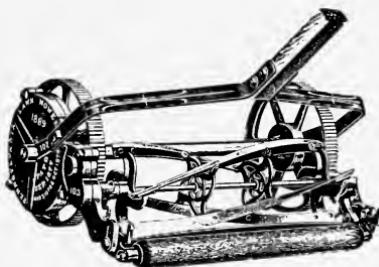
We carry a complete line of hose, sprinklers, shears, rakes, etc.



# Lawn Mowers

**The Standard Pennsylvania** is the pioneer of all lawn mowers, having an open cylinder, open wheels and a train of gears.

Width of cut 15 in. 17 in. 19 in. 21 in.  
Price \$27.00 \$30.50 \$34.50 \$38.50

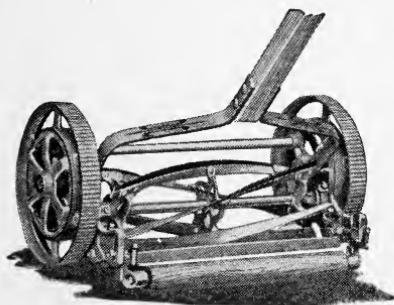
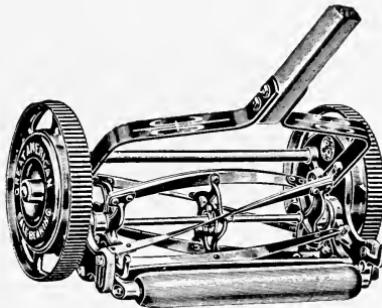


**The Pennsylvania Jr. Ball Bearing** has all the good points of the Standard Pennsylvania, with the addition of some features that make it the most perfect grass cutter in the world.

Width of cut 15 in. 17 in. 19 in. 21 in.  
Price \$27.00 \$30.50 \$34.50 \$38.50

**The Great American Ball Bearing** is the best all-round mower of its type made. The perfectly fitting ball cups and cones insure an easy running machine.

Width of cut 15 in. 17 in. 19 in. 21 in.  
Price \$17.50 \$19.50 \$22.50 \$25.00



**Wm. Penn** a type of lawn mower that will give good service and satisfaction on any kind of a lawn.

Width of cut 16 in. Price \$16.00

**O. & W. Mowers**, a good mower at a low price.

Width of cut 16 in. Price \$12.00  
" " " 14 in. " 10.00

<b>Braun Grass Catchers</b>	15 in.	17 in.	19 in.	21 in.
	\$3.50	\$3.75	\$4.00	\$4.25

# List of Grass, Clover and Millet Seed

(At market Prices)

**Timothy, or Herd's Grass.** One of, if not the commonest and best known grasses. Very valuable for hay. Perennial, fibrous and often bulbous rooted. (45 lbs. to the bushel).

**Red Top.** Is a fine permanent grass. Often sown with timothy and red clover, in which case the clover soon disappears to be replaced by timothy, which in turn gives way to the red top. Very valuable in mixtures for permanent pastures.

Chaff Red Top 10 lbs. to the bushel. Fancy or cleaned 35 lbs. to the bushel.

**Kentucky Blue Grass.** Also called June grass. Root-creeping, perennial, flowers in June. It requires about two to three years to become well set and does not arrive at perfection as a pasture grass until the third or fourth season. (14 lbs. to the bushel.)

**Orchard Grass.** A perennial grass, flowers from June to July. Very valuable for pastures, also in connection with timothy and clover for hay crops. When used with timothy use one bushel orchard and 8 lbs. clover. If sown alone use three bushels to the acre. (14 lbs. to the bushel.)

**Sudan Grass.** A quick growing annual. A forage crop of great value. Stools freely. Grows 3 to 5 ft. tall, two and sometimes three crops can be cut. Grows until frost. When sown broadcast use 25 lbs. per acre.

**Rhode Island Bent.** Root-creeping, perennial, flowers in July. Very valuable for lawn purposes. Sow from three to four bushels to the acre. (10 lbs. to the bushel.)

**Large Red, or Mammoth Clover.** Grows from four to five feet high; stocks so coarse that cattle will eat but leaves only, but by its judicious use, exhausted lands may be reclaimed. (60 lbs. to the bushel.)

**Medium Red Clover.** The most important of all the varieties of clover for the practical purposes of agriculture. Sown with timothy and other grasses it produces desirable hay or pastures. (60 lbs. to the bushel.)

**White Clover.** The value of this clover is well known; it is found in most every natural pasture. It is adapted to all soils. Being deep-rooted it withstands drought when grown on dry, sandy sections. It should form a part of all mixtures for permanent pastures. (60 lbs. to the bushel.)

**Alsike, (Clover).** This is one of the hardy varieties. It resists cold, extreme drought and wet, and on rich warm soils yields immense crops of hay, or pasture of good quality. (60 lbs. to the bushel.)

**Alfalfa (Clover).** A heavy forage crop doing well in almost all localities. Requires well limed soil and good drainage.

**Hungarian (grass) Millet.** Splendid forage crop for light land. On rich land two crops may be grown the same season. Withstands drought and yields abundantly. (48 lbs. to the bushel.)

**Golden, or German Millet.** A heavier cropper than the Hungarian, and needs a longer season and a stiffer soil, stands up well, is easily cured, makes a coarse, harsh hay, which is greedily eaten by all kinds of stock. (50 lbs. to the bushel.)

**Japanese Millet.** This is by many considered the most valuable of all forage plants. It makes more hay than German millet or any other. Although it grows large, sometimes seven or eight feet high, the hay is of excellent quality. It is adapted to all sections.

**Use O. & W. Special Grass Fertilizer**  
**The Fertilizer That Makes Grass Grow.**

## Leguminous Plants as Soiling Crops

All the leguminous plants (peas, clovers and beans, etc.,) have the power of taking up the free nitrogen in the air and converting it into available forms of ammonia so very valuable as a fertilizing ingredient to the soil.

Therefore the roots (or, as in some cases where the entire plant is turned under) provides a large supply of available ammonia for the crops which are to follow.

Cow Peas, . . . . .	at lowest market prices
Soja Beans (Soy Beans), . . . . .	" " "
Mammoth Clover, . . . . .	" " "
Medium Clover, . . . . .	" " "
Vicia Villosa, or Hairy Vetch, . . . . .	" " "

## GRAINS

Barley, . . . . .	at lowest market prices
Japanese Buckwheat, . . . . .	" " "
Rye, . . . . .	" " "
Seed Oats, . . . . .	at market price

Canada Field Peas. Grown largely with oats as fodder crop. At market prices.

### Use "O. & W" Special Grain and General Crop Fertilizer

# HUMOGERM

Legume Inoculation

The Best Inoculation for All Legume Seeds Means Better Crops, Better Soils, Less Fertilizer Expense

Seeds of all Legumes — Clovers, Alfalfa, Sweet Clovers, Garden Peas, Beans, and Sweet Peas, Vetches, Soy Beans, etc. — will yield far better results if inoculated with HUMOGERM, and in addition, leave in the soil a heavy deposit of nitrogen which benefits all succeeding crops. No other inoculant will produce the wealth of nodules obtained by using HUMOGERM. We believe in inoculation, we favor the soil medium, and we believe in HUMOGERM. Of all the inoculants manufactured, we believe it is the most effective, and cheapest, consistent with high quality.

WHAT HUMOGERM IS: A culture of bacteria especially selected and bred for maximum vitality and ability to take nitrogen from the air. They are carried in a sterilized, finely ground, porous humus medium that keeps them fresh, active and vigorous. Economical and easy to use, HUMOGERM is a sensible insurance and a profitable investment.

HOW TO ORDER: Specify crop and number of bushels you wish to inoculate (one-bushel size contains sufficient bacteria to thoroughly inoculate one bushel of designated variety of legume seed).

PRICES ARE LOW. For small seeds — Clovers, Sweet Clovers, Alfalfa, etc.

1/4-bus. size . . . .	\$0.35	1 -bus. size . . . .	\$1.00
1/2-bus. size . . . .	.60	2 1/2-bus. size . . . .	2.25

New reduced prices on cultures for large-size seeds — Soy Beans, Cowpeas, Peas, Beans, Vetches, etc.

1/2-bus. size . . . .	\$0.35	1 -bus. size . . . .	\$0.60
5-bus. size . . . .			\$2.25

Special Garden Size for Garden Peas, Beans, and Sweet Peas, 25 cts.





## Northern Grown Certified Seed Potatoes

**Certified Irish Cobbler.**—An excellent extra early variety, will mature in seven weeks from time of planting; in color pure white with deep eyes, usually of good cooking quality.

**Certified Improved Green Mountain.**—This variety is too well known to require any description; it is recognized as the standard of excellence in all New England; white skinned, oval formed, smooth and attractive and a good yielder.

*Don't waste labor and fertilizer on poor seed. Get the best.*

Our certified seed potatoes have been carefully selected from fields in Aroostook County, Maine and Prince Edward Island.

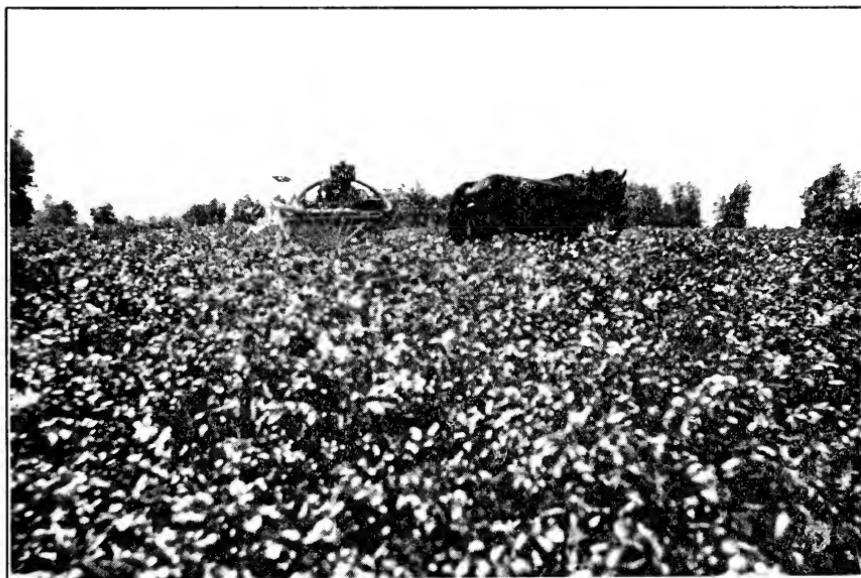
Prince Edward Island Certified Seed Potatoes have set the standard for America. Beginning in 1918, when only one carload of Certified Seed Potatoes was shipped, the industry in Prince Edward Island has had a phenomenal growth.

The climate of Prince Edward Island is ideal for the production of potatoes. There is rarely a drought, and never excessive rains. The temperature ranges from 64 to 80 degrees, and fogs are unknown. The soil is of a red sandstone formation, naturally somewhat acid, free from stones and rocks, has good drainage, all of which are favorable and important factors.

The potato, while widely grown in the United States on many different kinds of soil, does better on certain types of soils than others.

If one were attempting to describe an ideal soil for potatoes, it would be about as follows: The soil should work easily and not get in poor physical condition after heavy rains; should be well supplied with organic matter or humus; and should be well drained but possess a good water-holding capacity, due to the presence of organic matter on the one hand and a proper proportion of the fine soil constituents, silt and clay, on the other. The soil should possess a good physical condition to some depth to enable the roots of the potato plants to enter the soil readily and allow for proper tuber development.

**It Pays to use  
O. & W. High Grade Potato Fertilizer**



Prince Edward Island Cobblers and Certified Maine Green Mountains grown on O. & W. High Grade Potato fertilizer on farm of Annie Kupchunas, Wapping, Conn. These fields containing 23 acres were sprayed with a Myers Universal Sprayer and produced very good yields.

## THE IMPORTANCE OF SPRAYING

Our Agricultural Colleges and Experimental Stations backed by both the State and Federal Governments have been largely instrumental in awakening the general public to the real importance of spraying. This has been accomplished through numerous bulletins and circulars issued from time to time and distributed by tens of thousands, so that first hand and reliable spraying information has been sent out broadcast into every nook and corner of the United States. In fact, so thoroughly has the matter of spraying been investigated and advertised, that no one today is ignorant of its importance, but, there are yet those who have not given it attention for different reasons, while others are profiting by this neglect and getting better prices right along for their products.

"Better Fruit and more of it" has become the slogan of every fruitman for it means higher prices for his crops. But this also means better care of his trees and vineyards — higher cultivation and protection from the enemies of tree, plant and vegetable life by proper fertilization, pruning and spraying at the right periods. In fact, spraying is now considered so important that practically all fruit offered for sale today in the public markets is of the sprayed kind. No other will do. Unsprayed fruit is usually small, knotty and spotted and cannot compete with the sprayed article, even if sold at a much lower price.

## PLANT AND TREE ENEMIES

Two kinds of enemies attack fruit trees and plants, namely; insects and fungous diseases. The application of substances, usually liquid, to the tree or plant for the purpose of preventing or destroying these constitutes spraying, insecticides being used for the insects and fungicides for the fungous growths. We spray to destroy insects and to prevent fungous diseases. For convenience, injurious insects are usually divided into two classes, based upon their feeding habits; eating or chewing insects and sucking insects.

## FEEDING HABITS OF INSECTS

Chewing insects are those having jaws by means of which they bite off and eat portions of the tissues of the plant, such as foliage, fruit buds, tender bark, etc. Examples of this class are — the codling-moth which causes wormy apples, the plum curculio, the potato "bug" or beetle, caterpillars, etc. Most of the insects of this class are very easily controlled by applying to their food arsenical poisons, such as Paris green and arsenate of lead which is placed within their feeding range to be found by them sooner or later. It is with this class that success depends greatly upon spraying at the proper time; for example, the codling-moth caterpillar may be killed if there is some poison on the apple just as the insect eats its way in, but after once getting into the fruit it is safe.

Sucking insects are those furnished with a beak or slender tube with which they pierce the plant tissue and suck out the sap. Examples of this class are San Jose scale, oyster scale, scurfy scale, aphis, plant lice, etc. These insects are safe from poisons because we cannot get any poison into their food and must be killed by a direct application of such insecticides as will kill by contact, of which the most common is lime sulphur. In fighting this class of insects very thorough work is required, for every individual insect must be hit by the spray.

## FUNGOUS DISEASES

Fungous diseases are parasitic consisting of plants or growths of low form, which live on other living plants. Examples, apple and pear scab; black, brown and bitter rot, mildew, etc. These diseases are disseminated almost wholly by the means of spores, which are extremely small, disk-like bodies corresponding to the seed of higher plants and are usually borne on the surface. These spores are produced in great abundance and each one is capable of starting a new fungus. They are carried from one plant to another by means of wind, water and insects. For fungous diseases, then, a spray is required which will kill the spores and the important point is to commence spraying with fungicides before the disease presents itself, as spraying for fungous diseases is a preventive rather than a cure. For this purpose the combination of lime and blue vitrol, known as Bordeaux mixture, is the principal remedy. Here again thoroughness is of the utmost importance.

## Insecticides and Fungicides

**Arsenate of Lead Powder.** Can be used for dusting (mixed with Hydrated Lime) or spraying to kill most chewing insects on Plants, Trees, Shrubs, etc. /

**Bee Brand Insect Powder.** Ground from pyrethrum flowers, harmless to mankind and domestic animals. For use against mosquitoes, bed bugs, lice on fowls, ants, roaches, moths, flies, fleas, and many other insect pests.

**Black-Leaf "40".** A concentrated solution of Nicotine Sulphate — For spraying to destroy sucking insects.

**Bordeaux Mixture.** Powdered. A mixture of Copper Sulphate and Lime, used to control all fungus and blight on low crops and grapes.

**Bug Death.** A non-poisonous insect killing powder, for worms, bugs and caterpillars.

**Calcium Arsenate Powder.** A poison for chewing insects on potatoes and other low crops. (Do not use on trees or grapes).

**Copper Sulphate.** (Blue Stone).

**Crow Repellent.** Non-poisonous, used to protect corn after planting from birds and animal pests.

**Dry Mix.** A sulphur lime casein mixture used as a spray for diseases on fruit trees.

**Emulso.** An oil emulsion applied at dormant or delayed dormant on trees for the control of red mite, aphis, scale, etc.

**Fly Spray Liquid.** For protection of horses, cattle, dogs and hogs from flies, mosquitoes, fleas and lice.

**Koloform.** A superfine Dry Mix. containing Colloidal Sulphur.

**Lime Sulphur Solution** or Lime Sulphur Powdered. For dormant spraying of fruit and shade trees also bushes against San Jose and Oyster Shell Scales, also for peach leaf curl and brown rot of peaches.

**Monohydrated Copper Sulphate.** Mixed with lime it is used as a dust for blight control, mostly on potatoes.

**Paris Green.** Used principally in poison bran mash for cut worms, etc.

**Pyrethrol.** A concentrated insecticide for killing the Japanese beetle, also useful against many other garden, hothouse, orchard, farm and house pests.

**Pyrox** For the control of insects and blights on low crops and grapes.

**Red Arrow Insect Spray.** A concentrated Liquid Insecticide.

**Wetex.** A superfine Dry Mix with Lead Arsenate for spraying all trees for the control of insects and diseases.

## Dusting

### The Modern Method Of Crop Protection

The rapid strides which the dusting method of crop pest control has made in the past four or five years is directly traceable to the efforts of the Niagara Sprayer Company. Its success, however, has come because it has done those things which were claimed for it, and brought results by the most direct route.

Dusts of infinite fineness have been perfected, containing those properties necessary to kill insect pests and prevent diseases. Not only do the Dusts do the work done by liquid sprays, but their development has opened new fields of Crop Pest Control.

Niagara Dusts are now being made that stick "through Wind and Rain," and exhibit toxic properties to many fungi and insects heretofore unequaled by either wet or dry materials.

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## Niagara Dusting Material

### Standard Mixtures

**DORMANT DUST.** (In metal drums 50 lbs. each). Delayed dormant dusting for San Jose scale, red mite and aphis on apples, pears, and shade trees.

**SULFODUST.** (In bags). Dusting Sulphur with special spreader and sticker, fineness 95%, 200 mesh. For apple scab, brown rot, etc. Standard fruit dust fungicide.

**KOLODUST.** (In bags). A new dust developed by the Niagara Sprayer Co. It is sulphur fused with bentonite at high temperature and the product is koloized (a colloidal form). This produces a dust of infinite fineness much finer than 300 mesh, which experiment stations have proven more toxic to fungous diseases than any sulphur yet produced.

**KOLOTEX.** (In bags). A Sulphur Poison dust that will stick. The New Exclusive Niagara Sulphur Fungicide with Lead Arsenate.

**KOLOKIL.** (In bags). A Sulphur Heavy Poison Dust.

**KOLOPEACH.** (In bags). A Sulphur Small Poison content Dust suitable for dusting peaches and other stone fruits.

**A-1 MIXTURE.** (In metal drums). A Contact Poison Dust. High percentage of quickly volatile nicotine fumes. 3% actual 100% nicotine. For aphids, red bugs, pear psylla, etc. The best contact dust for sucking insects, both out doors and green-houses.

**P. A. DUST.** (In metal drums). Used same as A-1, contains 4% actual 100% nicotine.

**VITIDUST.** (In metal drums). Copper, Lime, Lead Arsenate. Mixture for grapes.

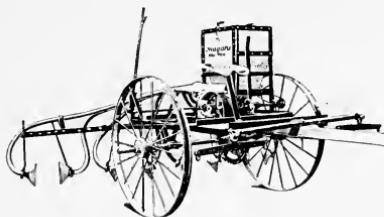
**COPODUST.** (In metal drums). A Copper-Lime Dust. The New Exclusive Niagara Copper Lime Fungicide for blights of potatoes, and other field crops.

**COPOTEX.** (In metal drums). A Copper Lime Dust, with Poison added for potato bugs, etc.

**WILDFIRE DUST.** (In metal drums). A Copper Lime Dust for tobacco.

# NIAGARA DUSTING MACHINES

## For Vegetable and Fruit Crops



**The "Dri-Fog" Crop Duster** (4 row, 8 nozzle or 6 row, 12 nozzle) is the most recent addition to Niagara's complete line of Dusts and Dusters.

This great crop duster is a new machine in every respect — in design, construction and performance.

Nothing has been overlooked that would simplify the crop dusting method, reduce the time and labor necessary for each job, reduce the cost and give the utmost efficiency in preventing ravages of pests and diseases.

### HERE ARE THE REASONS WHY —

#### The "Dri-Fog" Crop Duster is the Superior of All Crop Dusters

1. It will govern accurately the poundage of material to be distributed, and feed this dust to the distributing system at the rate of 5 pounds to 110 pounds of Niagara Potato Dust per acre.

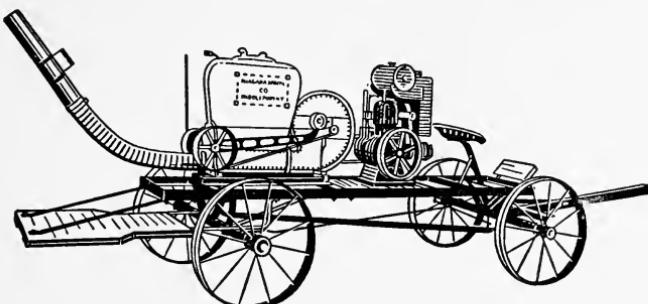
2. The distributor will divide this dust so that each side of every row will be covered with the same amount of dust.

3. The DRI-FOG is constructed so simply that all units are easily accessible for adjustment and repair.

4. The DRI-FOG is substantially built for operation on rough lands, yet so lightly built that it will not be another "horse-killer" on the farm.

5. More than anything else the DRI-FOG will develop air velocity and air volume to break up the dust and carry it in a penetrating cloud to all parts of the plants, so that every part will be covered with the same thickness of dust film.

**Prices on application.**



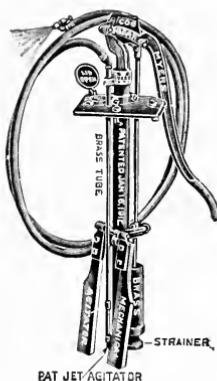
**Niagara Model F Fruit Duster** mounted on truck equipped with a 6 to 10 H.P. Twin New Way engine or 6 H.P. two cylinder Novo engine. **Prices on application.**



**Niagara Blower Gun Crank Type,**  
Brush Feed, Price \$18.50. Discount for cash.  
2 row "Y" attachment, Price \$2.25 net.

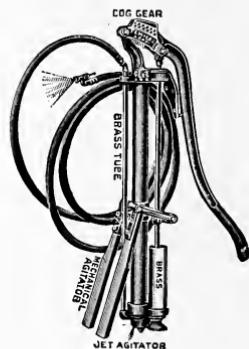
**Niagara Hand Plunger Gun, Price**  
\$1.00 net.

## Myers Barrel Spray Pumps



No. R318B — Myers Cog Gear Barrel Spray Pump, complete with one lead of 15 feet of  $\frac{1}{2}$  inch 5 ply discharge hose, graduating Vermorel nozzle, and mechanical agitator for closed head barrel.

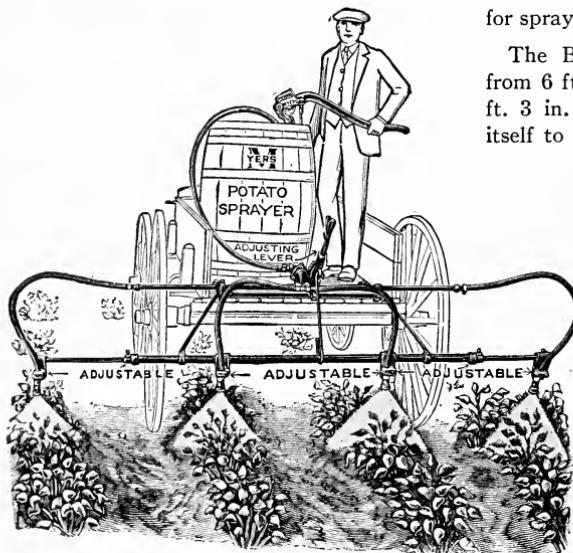
Price on application.



No. R305B — Myers Cog Gear Barrel Spray Pump with both jet and mechanical agitators, complete with 15 feet of  $\frac{1}{2}$  inch 5 ply spray hose and Myers graduating Vermorel nozzle for open head barrel.

Price on application.

Myers No. 6 Overhead Four Row Adjustable Potato Sprayer, mounted on plank that bolts to bottom of wagon box, and is complete with all hose and nozzles. The adjustable features adapt it to any kind of work or condition — nozzles adjustable in width to suit any width row and are so arranged that they discharge the spray either directly downward on top of the plant or either forward or backward as desired — can be raised or lowered a distance of 20" for spraying small or large plants.



The Boom is adjustable in width from 6 ft. 1 in. narrowest point to 11 ft. 3 in. widest point, thus adapting itself to any and all conditions.

Will pass through a 7 ft. gate. Can be used in connection with any Barrel Spray Pump. The cut at left shows Myers No. R318 Spray Pump being used with this sprayer.

Price on application.

FIG. 480

Figure 480 illustrates iron pipe extension made of  $\frac{1}{4}$  in. steel pipe threaded at both ends. Price 4 ft. length with coupling 50¢. Price 8 ft. length with coupling 80¢.

## The Myers Cog Gear Spray Pump

(Double Acting)

With brass valves and ground bevel brass seats, 2" seamless brass removable cylinder, hemp packed plunger and double lever shut-off discharge.

SPECIAL FEATURES: Cog Gear Movement increases the leverage, adapting it for spraying under heavy pressure. Mounted complete. Occupies smallest possible space. Capacity sufficient for 8 nozzles. An ideal outfit for spraying potatoes. Will set in an ordinary farm wagon box.

No. R316 C Pump complete, 50 gallon barrel mounted as shown, with pressure gauge, two 15 ft. leads of  $\frac{3}{8}$  in. 7 ply discharge hose, two Fembro nozzles, two 8 ft. pipe extensions with lever shut-offs and mechanical agitator.

Price on application.



## No. R336 B. Myers Portable Sprayer

Complete as shown in illustration, with dasher agitator, 15 feet  $\frac{1}{2}$  in. 5 ply discharge hose, 8 foot extension and Vermorel nozzle.

Price on application.

### No. R324 Myers Cog Gear Lever Bucket Spray Pump

With agitator, complete with detachable hose and graduating Vermorel fine sprinkling and solid stream nozzle.

Price on application.



## No. 327½ Myers Little Giant Brass Bucket Spray Pump

With agitator, complete with hose and imperial combination fine, coarse spray and solid stream nozzle, with malleable foot rest.

Price on application.



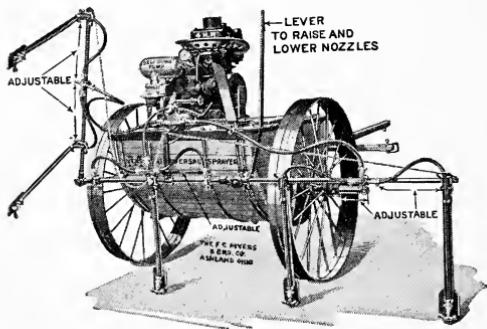
## Hudson Perfection Sprayer

Combines all the essential features of a successful compressed air sprayer. The tank is riveted and soldered, the pump is all brass, the nozzle is the most satisfactory shut-off nozzle made, it will close tight under any pressure and there is consequently no leakage. It will handle all solutions.

Price on application.

## Myers Self-Oiling Universal Sprayer

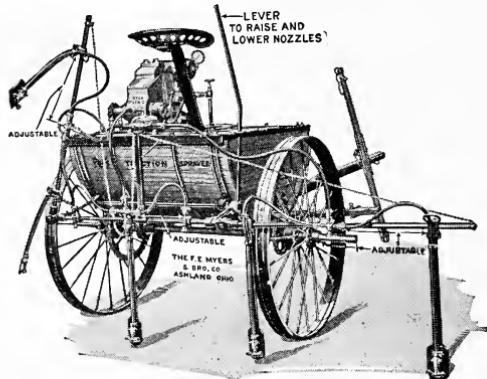
For Spraying Orchards and Rowed or Field Crops, Fruit Trees, Potatoes, Tobacco, Celery, Tomatoes, Cabbage, Beans, Alfalfa or Weeds.



Myers No. 150 Self-Oiling Universal Sprayer with best quality 150 gallon cypress tank, rotary agitator, equipped with self-oiling duplex pump, and recommended as a simple, thoroughly rugged, and dependable outfit from which all of the ordinary weaknesses usually found in cart sprayers have been removed. Complete with 4 H.P. Engine.

Price on application.

## Myers Self-Oiling Traction Sprayer



Myers No. 155 Traction Sprayer with 125 gallon tank, No. 718 duplex self-oiling pump, with clutch unloading pressure control valve, pressure gauge, gate valves. Myers 4 Row spray boom with 12 nozzles, doubletree and neckyoke complete.

Price on application.



# Pyrox

The Powerful Triple-duty Spray  
Kills Bugs — Controls Disease — Increases Yields

Commercial potato growers have found that Pyrox increases yields 20% and more. Pyrox increases yields and quality even when there are no bugs or blight. Actual figures prove it pays to spray with Pyrox. Wherever this time-tested, well-known, insecticide and fungicide has been properly used, better crops, larger yields and extra profits have resulted.

Pyrox is easy to use. Five minutes and you're ready to spray. No fuss or muss. Simply dip this creamy-smooth paste out of jar or can, add water as directed; stir—and in a few moments you have a perfect mixture that sprays, mist-like, through the finest nozzles. Pyrox lays a thin protective coating over the whole plant. Sticks like paint. One pound of Pyrox makes 5 to 6 gallons of spray.

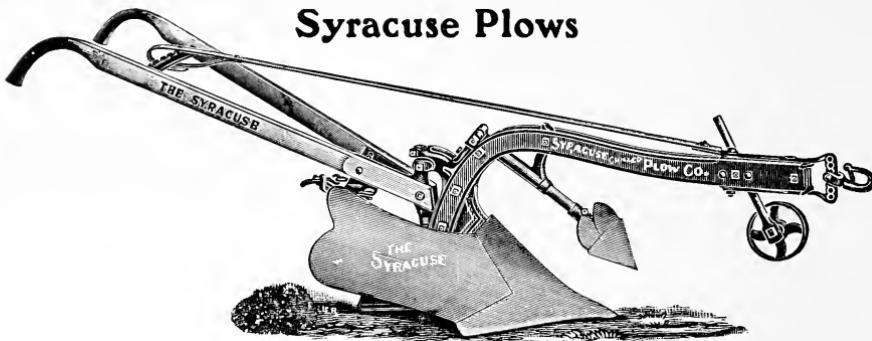
The new Spray Guide contains up-to-date spray information of value alike to the home gardener and the commercial grower. You may have a copy free. Prices—1 lb. 50¢., 5 lbs. \$1.75, 10 lbs. \$3.00, 25 lbs. \$6.25, 50 lbs. \$10.75, 100 lbs. \$15.50, 300 lbs. \$43.50.



## NICOTINE PYROX

A new special spray. Kills 31 varieties of bugs including aphids. A complete spray for Flowers, Vegetables and Small Fruits.

## Syracuse Plows

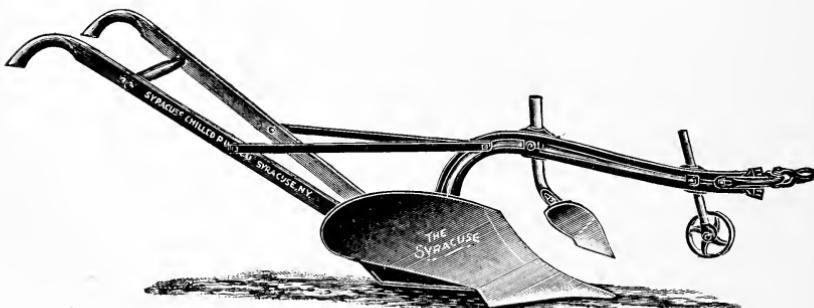


### John Deere Syracuse No. 821 Series Truss Steel-Beam Hillside Plows

Ample throat room and close fitting joints prevent clogging. Choice of white iron or tempered steel mouldboards adapts them to a variety of soils. Steel and malleable iron give maximum strength and unusual light weight. Two-piece truss-style beam will not bend or break. Renewable shoe protects standard and serves as landside.

No.	Size of Furrow			Weight, Plain
		Depth	Width	
825	Light	1-H	4 to 6 in.	7 to 10 in.
824		1-H	4½ to 6½ in.	8 to 11 in.
823	Light	2-H	5 to 7 in.	9 to 12 in.
822		2-H	5½ to 7½ in.	10 to 13 in.
821		Large 2-H	6 to 8 in.	11 to 14 in.

Prices on application.



### John Deere Syracuse 31 Series Plows

Furnished with steel clevis, soft center steel mouldboard, solid steel landside cast shoe and chilled share.

No.	Size of Furrow			Weight, Plain
		Depth	Width	
32	Medium	2-H	5 to 7½ in.	10 to 13 in.
31	Large	2-H	5 to 8 in.	12 to 15 in.

Prices on application.

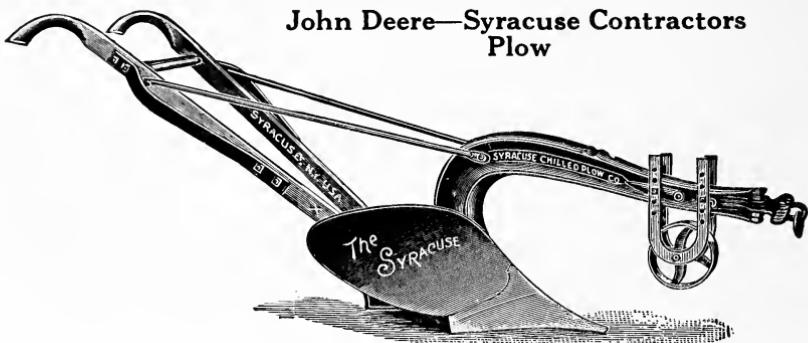


18 acres Havana Tobacco grown on O. & W. Blue Label Tobacco Fertilizer  
by John Chicosky & Sons, Hazardville, Conn.



14 acres Havana Tobacco grown on O. & W. Complete Tobacco Fertilizer  
by Frank Bracknowski, Suffield, Conn.

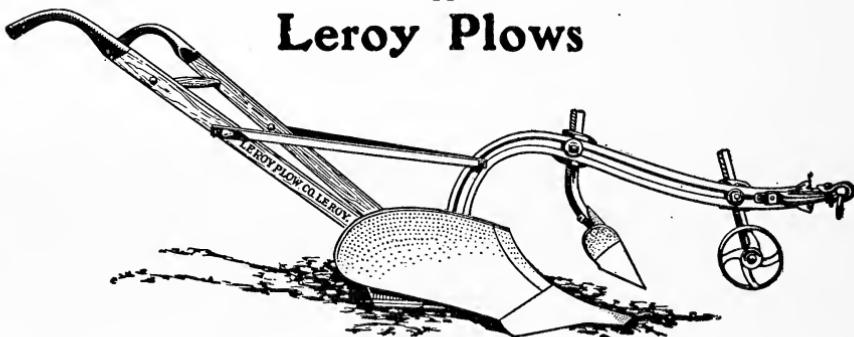
**John Deere—Syracuse Contractors  
Plow**



The No. 1 turns furrows 5 to 9 inches deep and 12 to 15 inches wide. Built to stand the strain — extra heavy beam, share and landside, steel wheel frame, loop handle wear irons.

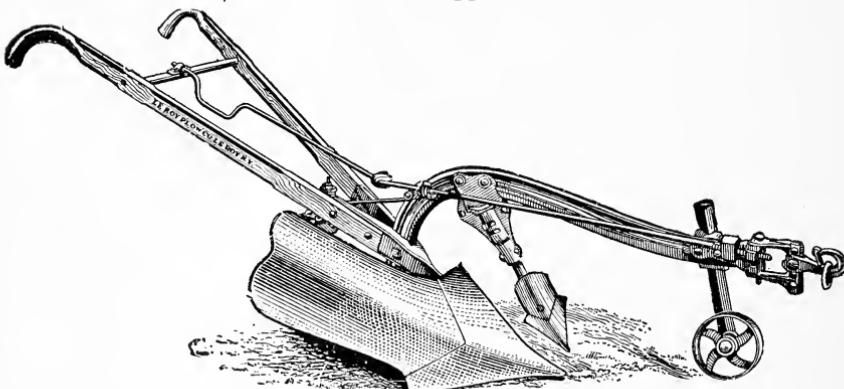
Price on application.

**Leroy Plows**



No.	Style	Furrow	Weight
107	One horse	4" to 6" deep, 6" to 11" wide	90 lbs.
108	Light 2-horse	4" to 6" deep, 9" to 12" wide	115 lbs.
109	Medium 2-horse	5" to 7" deep, 10" to 13" wide	120 lbs.
110	Large 2-horse	5" to 8" deep, 11" to 15" wide	125 lbs.

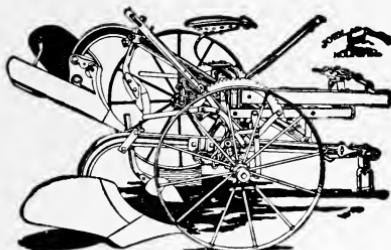
Prices on application.



No. 30 — Capacity, 5 to 8 inches deep, 10 to 14 inches wide. Weight, plain, 110 lbs. Full rigged with jointer and shifting clevis as pictured. Weight, 165 lbs.

Price on application.

## John Deere Two-Way Plow



Ideal for plowing hillsides or irregular fields. Leaves no dead furrows or back ridges. Patented features make this the easiest plow to control.

The superiority of Syracuse Plow Bottoms is the result of many years' experience in the successful manufacture of plow parts and constant study of the various soil conditions that require their use.

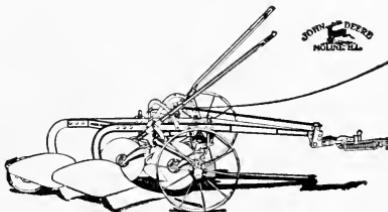
Right Hand	Left Hand	Weight	Style	Capacity
1442	1342	659 lbs.	Chilled	12-inch
1441	1341	677 lbs.	Chilled	14-inch
1442-C	1342-C	639 lbs.	Combination-C	12-inch
1441-C	1341-C	655 lbs.	Combination-C	14-inch
1442-S	1342-S	639 lbs.	Combination-S	12-inch
1441-S	1341-S	655 lbs.	Combination-S	14-inch

Prices on application.

## John Deere No. 40C Tractor Plow

Is built especially for use with small tractors. It has the great draft-reducing combination of rolling landside and self-adjusting hitch. A spring release hitch protects the plow against breakage when an obstruction is hit. Complete with combination Rolling Coulters and Jointers, 24" or 28" cut (steel mouldboards).

Price on application.



## John Deere No. 45C Tractor Plow

This plow is for use behind any standard two plow tractor. It is light, but very strong. Made of special John Deere steel. Hot-riveted construction gives rigidity and long life. A clutch on the axle engages the land wheel, and a pull on the trip rope raises or lowers the plow. Clutch parts are at work only when actually raising or lowering the plow; hence, will last a long time. A spring release hitch protects plow against breakage when an obstruction is hit. Complete with Combination Rolling Coulters and Jointers, 28" cut (steel mouldboards).

Price on application.

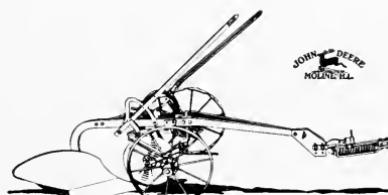
## John Deere No. 41C Tractor Plow

This plow is built especially for Fordson owners who require a single-furrow plow.

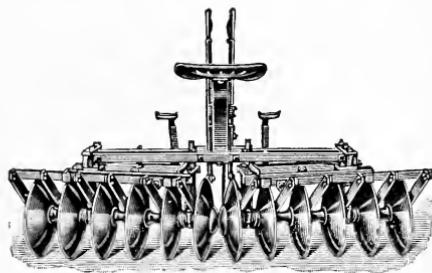
It is widely used in plowing extremely heavy soil; in plowing unusually hard ground, or in plowing unusually deep.

Sizes — 14-inch or 16-inch bottom.

Price on application.



# Disc Harrows



## OHIO — 12 - 16 Single Action

The construction of this Harrow is of the very best. It is all steel even the stub pole.

With Pole or Foretruck and 2 Horse Evener.

Price on application.

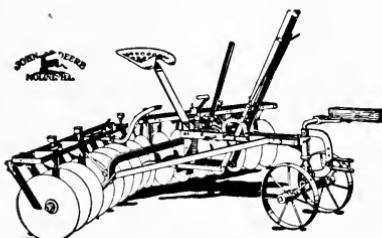
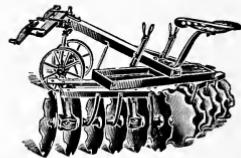
## CLARK CUTAWAY Single Action

The Clark "Cutaway" single action harrow is reversible, that is, the gangs can be swung end for end, so that the soil may be thrown either out or in.

8-16" discs one horse with shafts.

12-16" discs with Pole or Foretruck, and 2 Horse Evener.

Price on Application



## JOHN DEERE MODEL B

Extremely flexible, penetrates, pulverizes and packs the soil its entire width. Each gang works independently — one gang can pass over obstructions without lifting the other from its work.

12-16" discs with Foretruck or Pole and 2 Horse Evener.

Price on application.

## JOHN DEERE MODEL L FOR TRACTOR

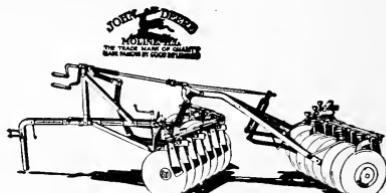
Front and rear sections are angled by independent cranks convenient to tractor operator, without backing or stopping harrow. Automatic yielding lock coupling, an exclusive feature, compels rear discs to cut ridges left by front gangs.

24-16" discs 6 ft. cut.

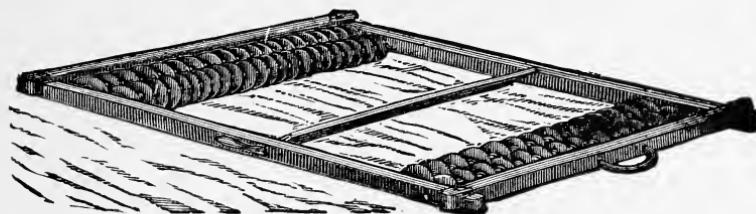
28-16" discs 7 ft. cut.

32-16" discs 8 ft. cut.

Prices on application.



## Meeker Smoothing Harrow



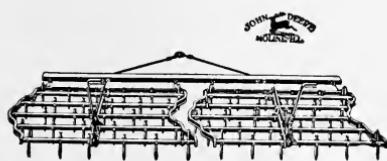
A perfect harrow and land roller combined. This harrow has become a great favorite among all classes of farmers and market gardeners.

It has four (4) sets of rollers containing 58 steel discs. These discs grind all lumps and save the work of raking and also smash small stones below the surface better than any field roller, leaving the land smooth and level.

6 ft. x 6 ft. 6 in. (for horses) or 8 ft. x 6 ft. 8 in. (for tractor) with 10 inch discs.

Prices on application.

## John Deere Universal Steel Lever Harrow



The Universal is the ideal spike-tooth harrow for orchard or vineyard work because the end rails prevent the tooth bars from catching on trees or vines. A spring relief on each lever permits the harrow teeth to pass over roots, stones, or other obstructions without being damaged.

We can furnish the Universal in one, two, three, and four sections, with either 25 or 30 teeth to the section.

Prices on Application.

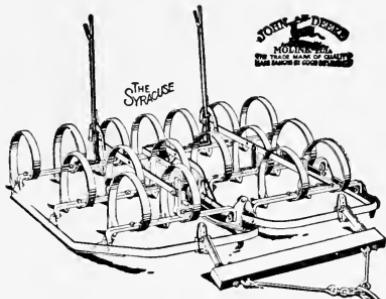
## Syracuse Spring Tooth Harrow

Its special-process, heat-treated spring-steel teeth penetrate to a greater depth than any other type of harrow teeth. They tear out the weeds and leave the field smooth. The teeth are securely clipped to the tooth-bars — no bolt holes to weaken them.

There are no delays due to clogging when you use one of these harrows — frame is designed so that weeds and trash work out through openings between the sections.

We can furnish any number of sections you desire; also tractor hitch if you want it.

Prices on application.



## Acme Pulverizing Harrows



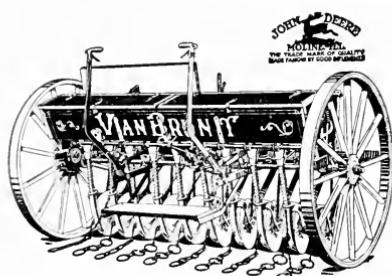
No. 8 — 4 ft. 4 in. cut for 1 horse (one section).

No. 12 — 6 ft. 6 in. cut for 2 horses (one section).

No. 12F — 6 ft. 6 in. cut for 2 horses (two section).

No. 16F — 8 ft. 6 in. cut for 2 horses (two section).

Prices on application.



### John Deere-Van Brunt Disc Fertilizer Drill With Grass Seed Attachment

Distributes any standard fertilizer and plants grain at the same time—also grass seed, when attachment is used; or it will handle any one of the three alone. All feeds can be thrown out of gear and discs used for stirring soil without seeding or fertilizing. Each wheel drives half the feeds, insuring positive and steady operation. One-half of grain feeds can be used for finishing a field or seeding narrow places. Van Brunt Adjustable Gate Force-Feed is one of the best seeding devices made. Drill handles fertilizer in quantities from 65 to 1250 pounds per acre. Plants wheat, oats, barley, flax, rye, rice, alfalfa, peas, beans, corn, etc.

Size 11 x 7 furnished regularly with 1-pole and 2-horse evener.

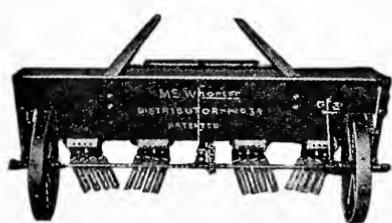
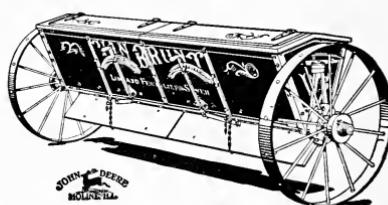
Complete with grass seed attachment. **Price on application.**

### John Deere-Van Brunt Lime and Fertilizer Sower

Covers 8 feet of ground; carrying capacity 10 bu. Direct wheel drive—each wheel drives half the machine.

One of the best features of this sower is the simple feed control which enables you to distribute crushed lime rock, commercial fertilizers, and other materials in quantities from 150 to 8,000 pounds per acre. Half of the mechanism can be disengaged for sowing narrow strips.

**Price on application.**



### McWhorter Fertilizer Sowers

No. 34 shown in the cut is a low-down type machine, which is intended for use with one horse. It can be used for broadcast or between the row sowing.

No. 26 is a two-horse machine, equipped with six sets of spouts, with a hopper capacity of 540 lbs., the extreme width is 9 ft.

**Prices on application.**

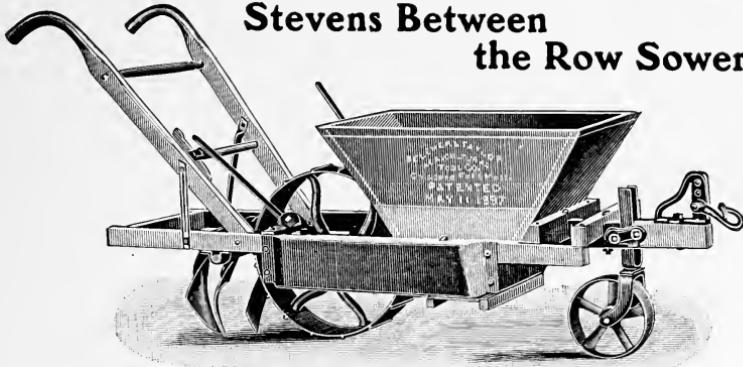
### Nonpareil Broadcast Fertilizer Sowers

#### Specifications

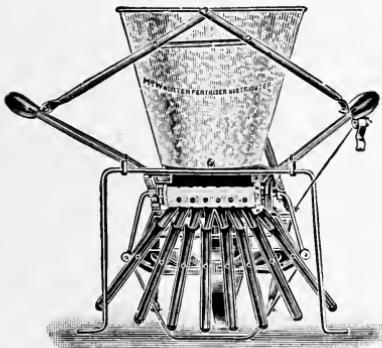
Name	Capacity	Weight	Width Sown
Special Sower	15 bu.	435 lbs.	8 feet
Standard Sower	10 bu.	351 lbs.	8 feet
Orchard or One Horse Sower	10 bu.	361 lbs.	5 ft. 3 in.

**Prices on application.**

## Stevens Between the Row Sower



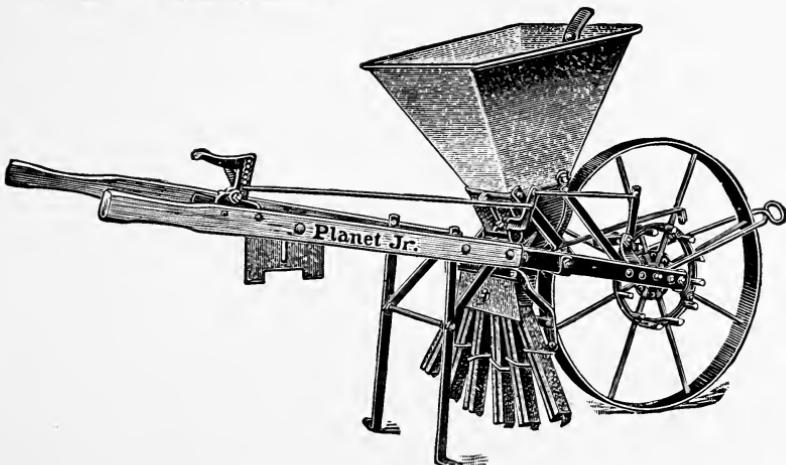
For sowing fertilizers between rows or for doing other surface work, as some tobacco growers claim that a part of the fertilizing should be done after the first hoeing. The machine is made with wheel inside the frame, and covers a space of 12 inches wide with fertilizer. It has three cultivator teeth, adjustably attached to back end of machine for covering. Price on application.



## No. 21 McWhorter Wheelbarrow Sower

This machine has the same positive belt feed as used on the larger McWhorter Sowers. Sows any quantity from a few pounds up to forty to the hundred yards of row, or from 200 lbs. to a ton per acre.

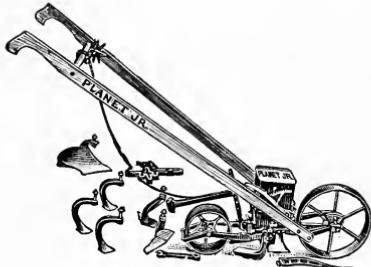
Price on application.



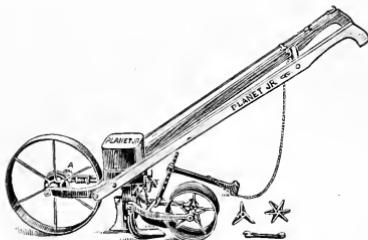
**Planet Jr. No. 220 Fertilizer Distributor** will distribute fertilizer in the middles of three rows 12 to 14 inches apart; it will side-dress one side each of two rows up to 36 inches apart (one complete row; and corn in wider rows). You can use it in very narrow rows — as close as 9 inches. Price on application.

# Planet Jr.

## Seeders

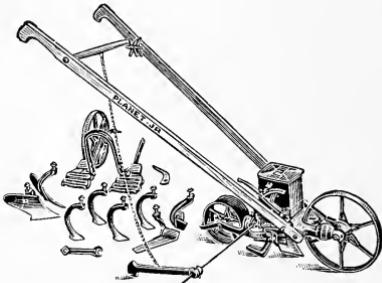


**No. 25 Planet Jr.** Combined Hill and Drill Seeder, Double and Single Wheel Hoe, Cultivator and Plow. Has long been known as the "Complete Gardener".



**No. 4 Planet Jr.** Combined Hill and Drill Seeder, Single Wheel Hoe, Cultivator and Plow. Very popular with owners of small gardens.

**No. 4D (seeder only).**



**No. 3 Planet Jr.** Hill and Drill Seeder. For Market Gardeners, Onion Raisers and other large growers. Holds 3 qts.

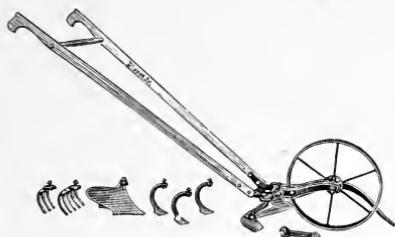
**No. 300 Planet Jr.** Drill Seeder. There has always been a demand for a quality seeder which will sow through holes in a plate rather than through a variable diamond-shaped opening.

In response to this demand we present the No. 300 Drill Seeder. It is designed primarily for use on light muck soil but so sturdily is it built that it is equally satisfactory on heavy loam or clay soils. Capacity 4 qts.

**Prices on application.**



## Planet Jr. Single Wheel Hoes



**No. 16.** Equipment (as shown): One pair of 6" hoes, three cultivator teeth, one garden plow, one 7" rake, one 4" rake, one leaf guard.

**No. 17** Equipment — one pair 6 in. hoes, three cultivator teeth, one plow.

**No. 17½** Equipment — one pair 6 in. hoes, three cultivator teeth.

**No. 18** Equipment — one pair 6 in. hoes.

Prices on application.

## Planet Jr. Double and Single Wheel Hoes Combined



**No. 11.** Equipment (as shown): One pair 6" hoes, one pair 4½" hoes, four steel cultivator teeth, one pair plows, two three tooth rakes, two five tooth rakes, two leaf lifters.

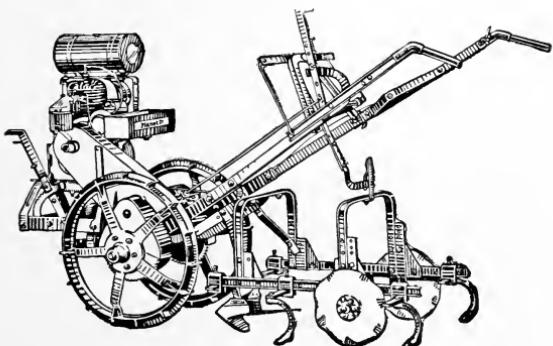
**No. 12** Equipment — one pair 6 in. hoes, four cultivator teeth, one pair plows.

**No. 13** Equipment — one pair 6 in. hoes.

Prices on Application.

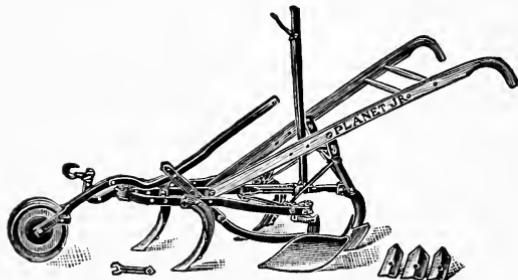
## Planet Jr. Motor Cultivator

The Planet Jr. Motor Cultivator is built to do a wider range of work, to do more work with less effort on the part of the operator, to do faster, closer cultivation and to afford greater economy.



The primary purpose of such a tractor is cultivation of narrow row crops such as beets, carrots, onions, etc. Many farmers and home owners with extensive gardens, however, wish to do a wider range of work from light plowing to horse cultivation in wide rows. The Planet Jr. has been made heavy enough and powerful enough to do this work in a very efficient manner. It handles a six-inch plow easily.

Price on application.

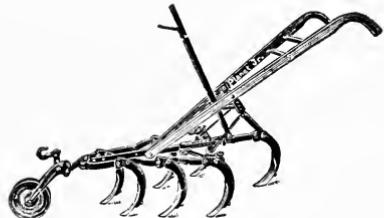
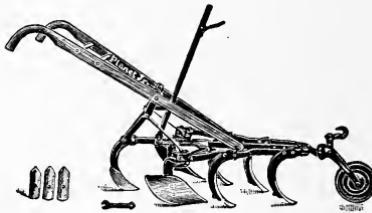


**No. 8 Planet Jr.** Horse Hoe and Cultivator. Equipment (as shown): Four 3 x 8 in. cultivator steels, one 4 x 8 in. cultivator steel, two 6 in. hillers, one 7 in. shovel, lever wheel, lever expander and depth regulator.

**No. 7 Planet Jr.** Horse Hoe — Same as No. 8 but has no depth regulator.

**No. 9 Planet Jr.** Horse Hoe — Identical with No. 8 except that it has a plain wheel instead of a lever wheel; and is without depth regulator.

**No. 82 Planet Jr.** Horse Hoe and Cultivator Combined. Equipment (as shown): Seven 2 1/4 x 8 in. cultivator steels, one pair 6 in. hillers, one 7 in. shovel steel, lever expander. Can be equipped with lever wheel.



**No. 90 Planet Jr.** Twelve-Tooth Harrow, Cultivator and Pulverizer (as shown).

The teeth are 1 1/4 inches wide and wear well, being specially hardened. By using the lower hole, the teeth may be set to slant backwards for breaking the crust before the weeds begin to grow.

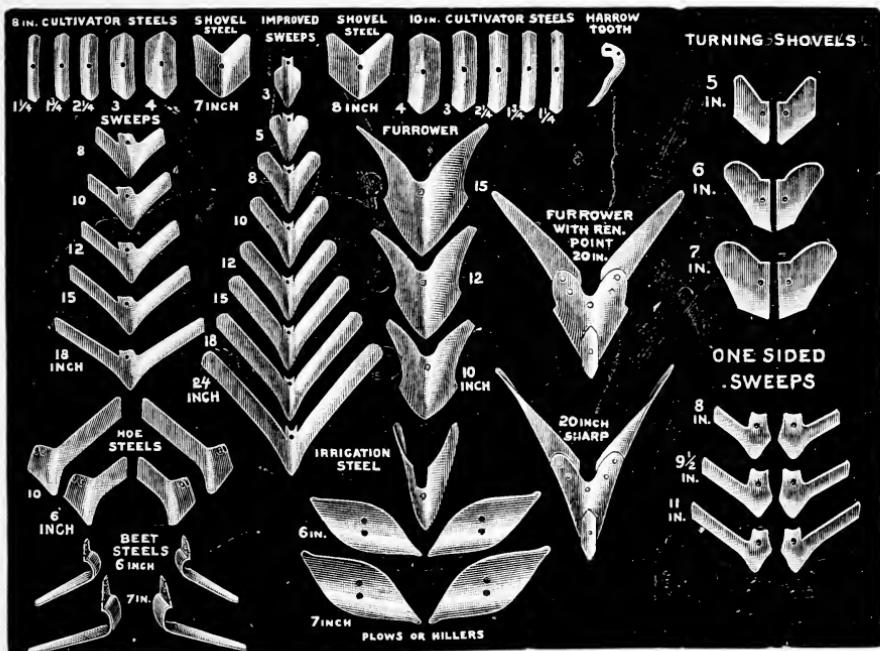
**No. 90B.** Less Pulverizer.

**No. 90D.** Less Pulverizer and wheel.

**No. 83 Planet Jr.** Seven Tooth Plain Cultivator. Equipment (as shown): Seven 2 1/4 x 8 in. cultivator steels, lever expander. Is the most profitable one-horse cultivator to use. The seven teeth make possible finer cultivation than can be had with a five-tooth cultivator. Can be equipped with lever wheel.



Prices on application.

**"PLANET JR."****Varieties of Steel Plates made for the "Planet Jr." Horse Hoe.**

The  $1\frac{1}{4}$  inch steels throw almost no furrow, and run very deep, yet work beautifully as cultivating teeth and subsoilers, very desirable where the soil is to be broken up thoroughly without hillng, as where the ground is clean, but beaten down by rains, or baked by the sun. The next two sizes,  $1\frac{3}{4}$  and  $2\frac{1}{4}$  inch, are desirable for general cultivation, and do superior work in hard lands. The next is 3 inch; this is the size, with one 4 inch for the rear standard, which is sent out with the Horse Hoe, unless otherwise ordered, being best adapted to general work in all kinds of soil.

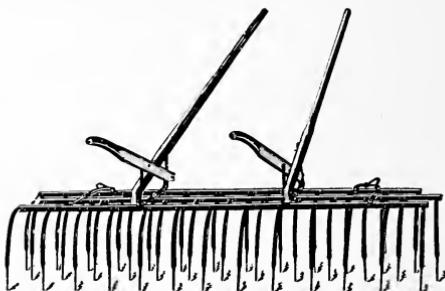
$1\frac{1}{4}$ x 8 inch Steels, . . . . .	\$0.17	12 inch Improved Sweeps, . . . . .	\$0.82
$1\frac{3}{4}$ " " " . . . . .	.18	15 " " " . . . . .	.97
$2\frac{1}{4}$ " " " . . . . .	.20	18 " " " . . . . .	1.27
3 " " " . . . . .	.22	24 " " " . . . . .	2.72
4 " " " . . . . .	.27	6 inch Hillers, . . . . .	.65
7 " Shovel Steel, . . . . .	.35	7 " " " . . . . .	.80
8 " " " . . . . .	.40	6 inch Hoe Steels, . . . . .	.65
Bolts, 5¢ each, 50¢ doz.		10 " " " . . . . .	.75
8 inch Sweep (regular) . . . . .	.43	10 " Furrower, . . . . .	1.00
10 " " " . . . . .	.46	12 " " " . . . . .	1.35
12 " " " . . . . .	.52	15 " " " . . . . .	1.75
15 " " " . . . . .	.70	20 " Furrower, old style, . . . . .	
18 " " " . . . . .	.85	with wings . . . . .	3.25
24 " " " . . . . .	2.00	20 " Furrower, new style, . . . . .	
8 inch Improved Sweeps, . . . . .	.57	with wings . . . . .	3.25
10 " " " . . . . .	.67	Pulverizer for Harrow Special, . . . . .	3.75

Improved Sweeps do not fit Horse Hoe Side Standards.

## Hallock Pattern Weeder

A Standard Weeder having curved teeth.

Price on application.



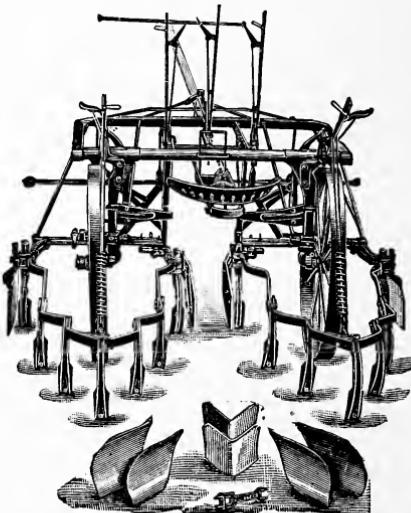
## Planet Jr. Pivot Wheel Cultivators

The No. 72 as shown has five levers, and they simplify its control so that a boy can operate it with success. The center lever adjusts the hinged tongue regulating the depth of the front teeth and leveling up the machine to suit all heights of neck yoke. The outside levers regulate the depth of the teeth in the rear, while intermediate levers are used in changing the widths of the gangs to suit irregular planting without stopping the team.

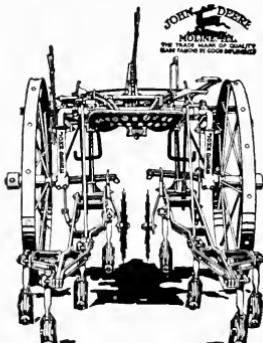
Price on application.

The No. 76D Single row works rows 28 to 48 inches apart. The gang frames are extra heavy, but improved levers with lifting and depth regulating springs make for easy, perfect control.

Price on application.



## John Deere K. C. Cultivator



It's easy to kill the weeds and work all the soil between the rows with the John Deere K.C. Cultivator. The K.C. is easy to handle—the rigs are always parallel—shovels always point straight ahead and cut out full width.

Light draft, good work, and typical John Deere quality make the K.C. a popular cultivator wherever used.

We can furnish the K.C. with any type of rigs you require.

Prices on application.

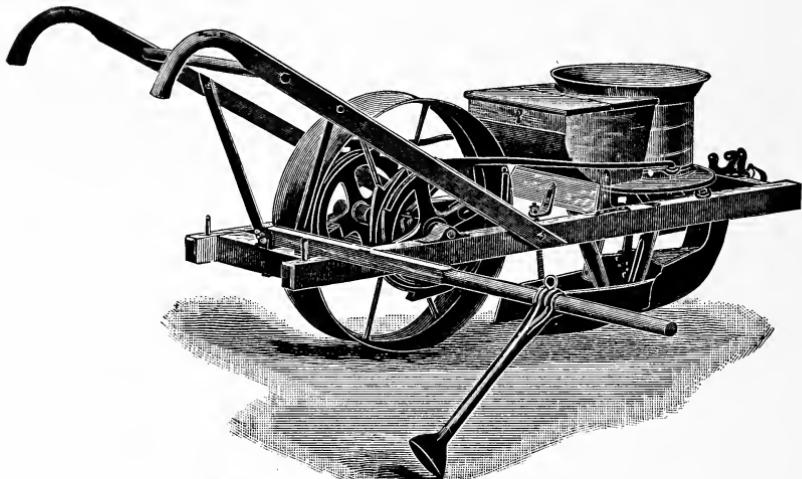


16 acres Broadleaf grown on O. & W. Blue Label Tobacco Fertilizer  
by Thomas M. Reardon, So. Windsor, Conn.



55 acres Broadleaf grown on O. & W. Complete Tobacco Fertilizer  
by John Maloney for Martin McGrath, So. Windsor, Conn.

## **"KING OF THE CORNFIELD"**

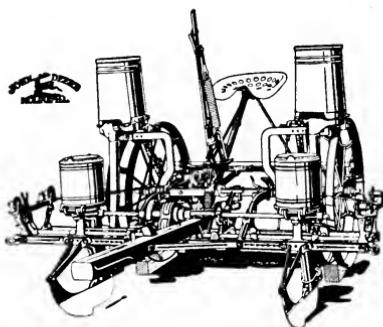


### ***Corn, Bean and Pea Planter and Fertilizer Distributor***

Every machine is warranted to be well made of good material, and guaranteed to do its work perfectly and satisfactorily with the different kinds of seeds, as we claim, if used according to directions.

Price on application.

### **JOHN DEERE No. 999 CORN PLANTER**

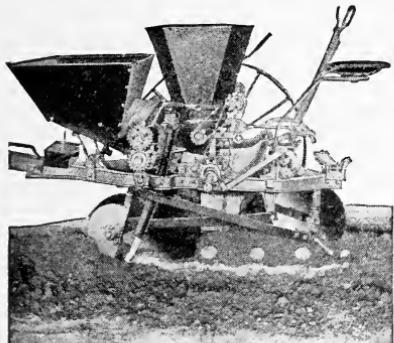


Widely recognized as the most accurate planter on the market. The John Deere Natural Cell-Fill, Edge-delivery seed plates, sloping hopper bottom, improved metal cut-off and knocker insure positive feed and unfailing accuracy. Plants accurately whether the hopper is full or nearly empty. Seed plates for handling every kind of corn; also beans, and many other seeds. Variable drop plants two, three or four kernels in each hill as desired. The number of kernels per hill can be varied merely by shifting foot lever, without stopping the machine. Also varies the distance in drilling. Easy to

change from hilling to drilling. Underhung reel; a touch of the toe releases check wire, fertilizer can be checked with each hill or drilled along the row.

Price on application.

# POTATO PLANTERS



## IRON AGE—Two Man, Assisted Feed

For many years it has been conceded that in its ground performance the Iron Age Planter exhibits the highest degree of perfection ever attained. By Iron Age ground performance is meant the opening of furrow, distributing of fertilizer, placing of the seed safely out of touch of the fertilizer and finally ideal covering and ridging. Equipped for large seed.

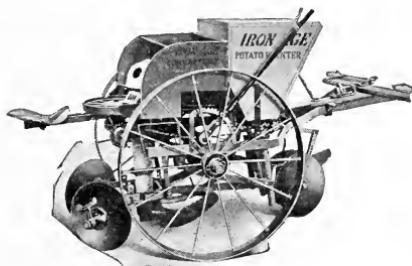
Price on application.

Hoover Visible With Automatic Seed Control. With the operator on the seat at the rear the whole planting operation is before him. This enables him to make certain that each picker is working properly, thus assuring perfect planting.

The Safety Fertilizer Attachment is equally efficient. You can regulate amount of distribution from 75 lbs. to 3,400 lbs. of fertilizer per acre.

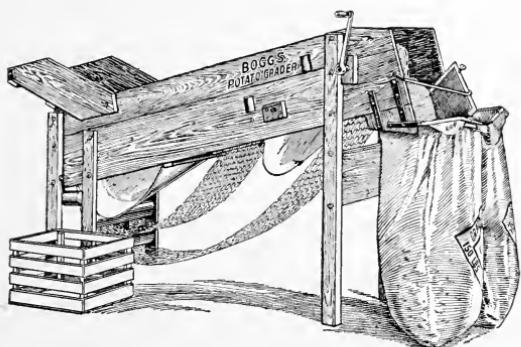
We can furnish the John Deere-Hoover Planter with fertilizer distributor in both 1 and 2-row sizes.

Price on application.



## HOOVER POTATO CUTTER

This cutter meets the general demand for a first-class potato cutter. Provision is made to cut either large or small potatoes into the proper number of pieces.



## BOGGS STANDARD HAND POTATO GRADER

Boggs No. 3 machine permits long or round potatoes to be sorted and graded into No. 1 and No. 2 sizes with less than 3% variation in size from government grades, and cleans them of all dirt, trash and culs in one operation. No. 3 hand grader as illustrated has a capacity of 150 bushels per hour.

Price on application.

When large quantities of potatoes are to be graded, the power equipments will be found most advantageous. They not only have much greater capacity than the hand machine, but effect a big labor saving. Prices on applications.

**Farquhar Success Jr.  
Potato Digger**

The most popular plow-type digger on the market. Just the digger for the small grower—in fact no farmer can afford to be without this digger even if he raises only sufficient potatoes for his own consumption. In time and labor saving it pays for itself the first season.

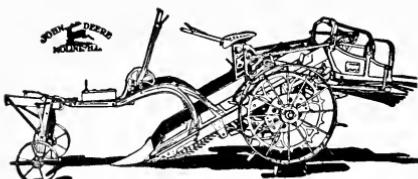
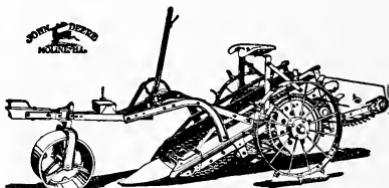
**Price on application.**



**The "Hoover" Potato Diggers** are made with rod type elevator, 6 and 7 foot frame, in 20, 22 or 24 inch widths, with chain, gear or engine drive, with agitating vine separating rear rack or extension elevator. All diggers can be furnished with either the Two-wheel (Double Action) or Single Roller Front Truck at same price. The 6 foot digger has 30 inch and the 7 foot 36 inch drive wheels with an extreme tread of 41 inches on the 22 inch chain drive and 39 inches on the 22 inch gear drive diggers and are practically of all steel construction.

No. 1522K gear driven with  $5\frac{1}{2}$  ft. 22 in. rod elevator and 3 ft. extension elevator built for the farmer with a small acreage.

**Price on application.**



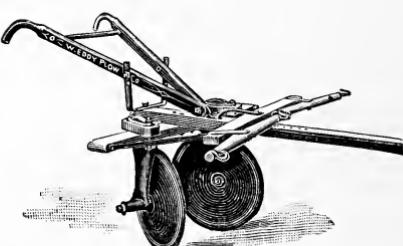
No. 622A chain driven with 6 ft. 22 in. rod elevator and vine separating rear rack.

**Price on application.**

**No. 10 Disc Hiller**

The most practical and efficient implement of the disc type, has 20" discs. Especially good for hilling potatoes.

**Price on application.**



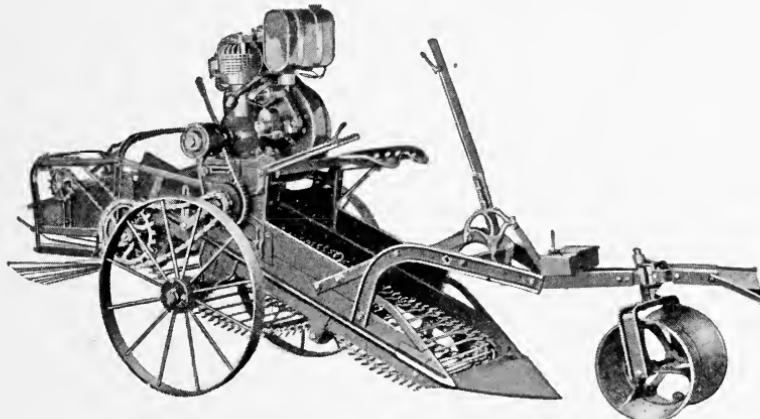
## Engine Drive Diggers

The engine drive potato digger is the adaptation of the modern light-weight gasoline engine to the driving of the mechanism of the elevator potato digger.

The engine is mounted on the main frame of the potato digger and transmits the power to the main elevator shaft.

From the driver's seat, the operator controls the friction clutch lever, also the speed of the engine for varying conditions of digging.

The clutch sprocket automatically releases if stone or other hard substance should become clogged in the digger. This eliminates all possibility of damage to the engine or digger.

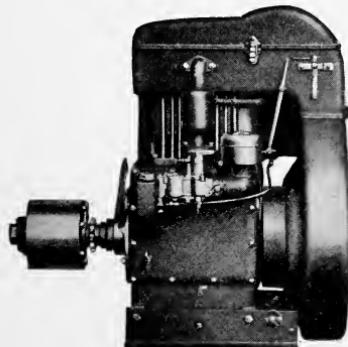


**Hoover** No. 4724A chain driven 7 ft. with 24 in. rod elevator, vine separating rear rack, and 5 Horse Power New Way Engine as shown.

**Iron Age** No. 220—7 ft. with 22 in. rod elevator, vine separator, and 5 Horse Power New Way Engine.

Prices on application.

## A New "New Way" Twin Air Cooled Engine



The most powerful industrial engine of its weight made. 6 to 10 H. P. Speed 400 to 1800 R.P.M. Outfit E3—as shown has 6 x 4½" F. C. Pulley.

New Way single cylinder 5 H.P. (shown on potato digger).

Prices on application.

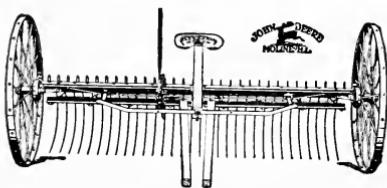
## John Deere High Lift Mower



An extremely simple mower with a high, easy lift. Bar raised with foot lift amply high to pass over ordinary obstructions, with hand lift bar raised extremely high. A boy can operate it. Special arrangement of simple driving gears prevents side strain and undue wear on bearings. Maximum power delivered to carefully-made and accurately-fitted knife. Location of pinion on crank shaft prevents end thrust. Bar attached to wide yoke insures instant starting. Cutter bar floats and has great flexibility. All adjustments and repairs quickly and easily made with ordinary tools.

Price on application.

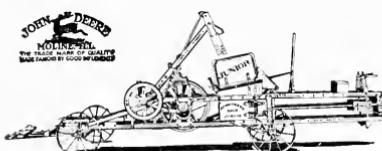
## New John Deere — Steel Sulky Rake



The rake that gives years of service. Wheels interchangeable, and dump rods reversible, giving extra wear without repair expense. There is no hay too heavy or too light for the John Deere Sulky Rake. It will do the kind of work desired under all conditions.

Self-Dump — 8, 9, 10 and 12 foot.  
Prices on application.

## John Deere-Dain Junior Motor Hay Press



A Light Weight Outfit Built for Individual Use.

Baled hay brings the highest market price. Hay that is baled is more easily handled, and requires less storage space.

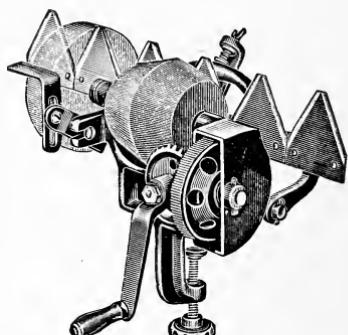
This press will bale successfully hay, alfalfa, straw, etc.

Price on application.

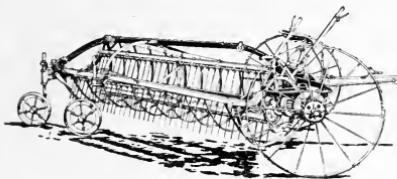
## Modern Grinder

For mower knives and general tool grinding fast cutter and easy to operate.

Price on application.



## John Deere-Dain Combination Rake



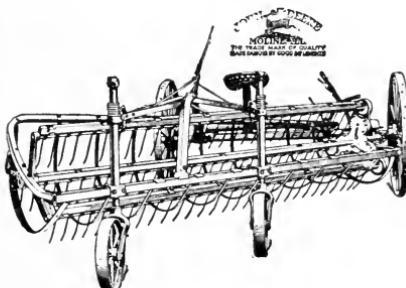
For the man who desires a combination rake, this machine will do satisfactory work. Moving one lever changes machine from rake to tedder. Angle of teeth easily changed, and either end of reel raised or lowered independently. Has ample clearance for heavy hay or large windrows. Left-hand wheel can be set in for turning windrows

Price on application.

## John Deere-Dain System Rake For Air-Curing Hay

This rake aids the hay-grower in producing hay that brings the highest market price. Air cures hay without loss of color, foliage or feeding value when used according to the John Deere-Dain System of Air-Curing Hay. Rake follows mower while leaves are still active and lays the hay in loose, fluffy windrows, leaves inside, butts out. The foliage thus protected cures properly, does not get brittle and break off. Inclined frame gives greater capacity as volume of hay increases. Curved teeth lift hay gently — no dragging or threshing. All adjustments are made from the seat.

Price on application.

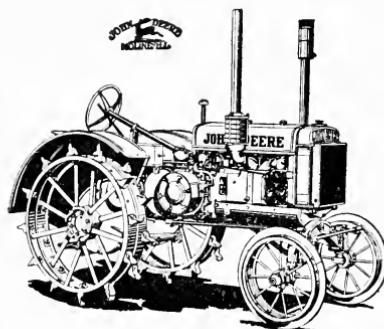


## John Deere Single-Cylinder Windrow Hay Loader



Very light draft and minimum number of working parts. Single drum mounted directly on the axle. Hinged carrier makes loading easy in windy weather. Furnished regularly with forecarriage — no lifting is necessary when coupling to wagon. Extra strong, well braced frame with hot-riveted corner plates. Gets all the hay when properly raked into windrows. Handles alfalfa and clover without knocking off valuable foliage parts. Capacity ample for all side-rake windrows. Made in 6 foot width with forecarriage.

Price on application.



No. 105 Model "GP" Standard  
Tread 2 Plow John Deere Tractor

# Simplicity and Economy

## —Features That Mean a Lot in the Tractor You Buy

Simplicity and economy are not new words, but they're mighty important features to be considered if you are buying a new tractor.

### THE JOHN DEERE TRACTOR IS ACTUALLY HUNDREDS OF PARTS SIMPLER THAN OTHER TRACTORS OF SIMILAR RATING.

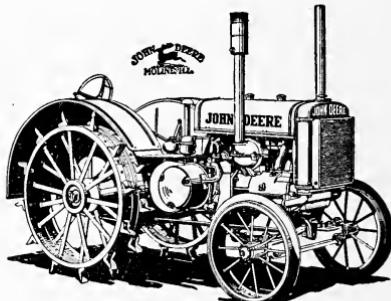
This means that when you own a John Deere you have a tractor that is much easier to understand and easier to operate. It means that you have a tractor that will last longer. The fact that the John Deere is made up of fewer parts has made it possible to build those parts *sturdier* and more wear-resisting and still keep the total weight down.

There are fewer moving parts to cause loss of power, fewer points of contact and wear, fewer possible sources of friction.

This John Deere simplicity saves you money both on repairs and in fuel costs. The heavy-duty, two-cylinder John Deere motor is designed to get maximum power, efficiency and economy from low-cost fuel.

It is only natural that this remarkable tractor is giving its owners more years of service at lower costs.

Prices on application.



No. 108 Model "D" 3 Plow  
John Deere Tractor

COME IN AND SEE THE JOHN DEERE AND GET FULL DETAILS.  
YOU'LL ALWAYS FIND US GLAD TO TALK "TRACTOR".

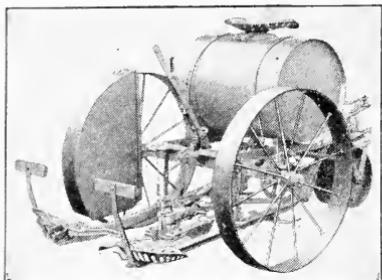


Planting corn with a John Deere General Purpose Tractor on the farm of J. W. Alsop, Avon, Conn. One man with this three-row outfit can plant 30 to 40 acres a day. Planter forms unit with Tractor. Power lift raises and lowers runners — no levers to operate.



First cultivation with John Deere Wide Tread G. P. Tractor, using two-row cultivator and Potato Hoe on the Joseph Pabski farm Southington, Conn. The power lift raises and lowers working equipment making it unnecessary to stop at the ends of the rows.

## New Improved Tiger Transplanter



The lifting lever works on an eccentric. A child can lift the weight of two men and when the lever is operated it automatically throws machine out of gear.

Simply and strongly made with these new improvements this machine is rapidly coming into favor with discriminating buyers. This machine has  $1\frac{1}{4}$  inch water connections. The flow of water is under perfect control and can be regulated to deposit as small a quantity as desired, or to discharge one pint to each plant.

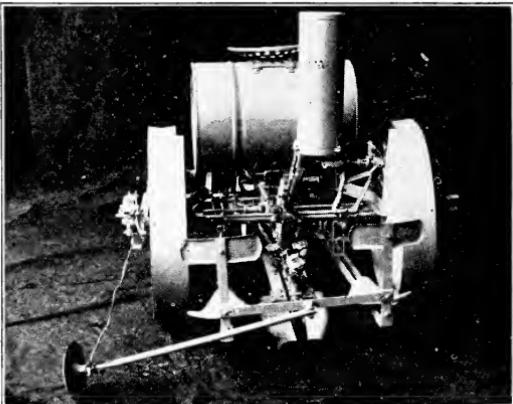
Price on application.

## Bemis Transplanter

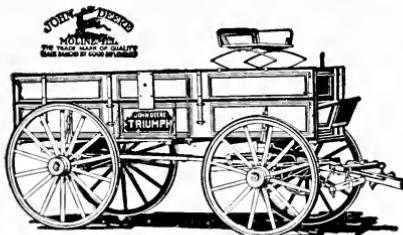
Thirty-five years of practical experience is embodied in the Bemis.

Nearly every tobacco farm in the Conn. Valley is equipped with one or more of these implements.

Price on application.



## John Deere Triumph Wagon



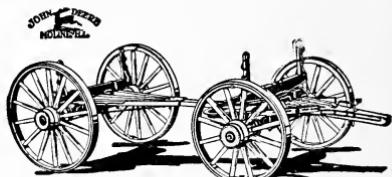
An attractive light-running wagon of moderate price having many of the features to be found on the more expensive John Deere wagons, among them the sand-and dust-proof skeins and malleable fifth-wheel bolster plate with corrugated coupling. Clipped gears; square wood front hounds of straight-grained oak; wheels are built strong of high grade material; hubs are oak or No. 1 black birch; oak or hickory spokes; box is firmly braced and strengthened with cross cleats and straps.

Prices on application.

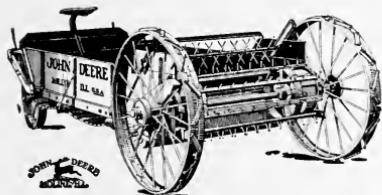
## John Deere Farm Truck

In price, strength, draft and finish, John Deere farm trucks give exceptional satisfaction. They stand hard usage year after year because they are built right and in a factory that has an established reputation for making only the best.

Prices on application.



## The Old Reliable John Deere Manure Spreader



In 1911 came the greatest change ever made in spreader design — the invention of the John Deere Spreader — the spreader with the beater on the axle; a machine that combined a low easy loading box with high drive wheels. This still is the preferred spreader on thousands of farms.

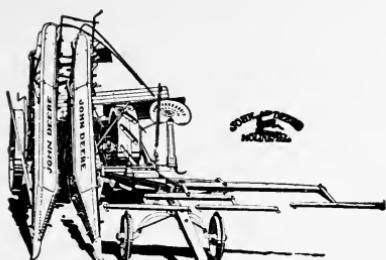
Price on application.

## Moline No. 200 Manure Spreader

A new sturdy, but light weight spreader simple in design.

50 Bushel size with 2 Horse Hitch.

Price on application.



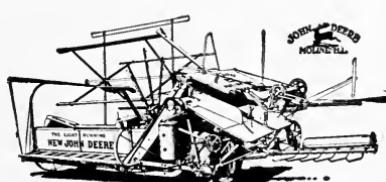
## John Deere Corn Binder

This binder is unusually easy to operate. By merely pressing foot-trip lever, power carrier delivers bundles free of horses' path and practically at right angles to standing corn. All steel quick turn Tongue Truck takes neck weight from horses and also makes it easy turning. Stiff pole and tractor hitches can be furnished.

Price on application.

## John Deere Grain Binder

Main frame is extra strong. Bars are widely overlapped and hot-riveted together. Into forged-in-frame bearing supports are fitted self-aligning bearings which cannot get out of line.



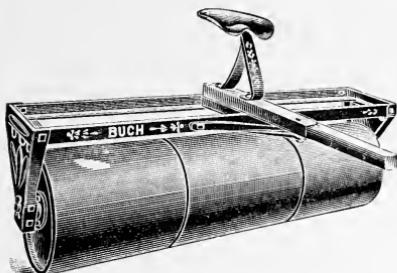
Price on application.



26 acres Shade Tobacco grown on O. & W. Fertilizer  
by Samuel Friend, Glastonbury, Conn. Above photograph taken July 21,  
1930, showing extra fine growth of young tobacco.



18 acres John Williams Type Tobacco grown on O. & W. Fertilizer  
by Elliott and Joseph Elmore, So. Windsor, Conn.

**STEEL LAND ROLLER**

The drums are heavy steel sheets not easily dented. The ends are closed to keep out dirt and trash. The frames are heavy angle steel securely bolted.

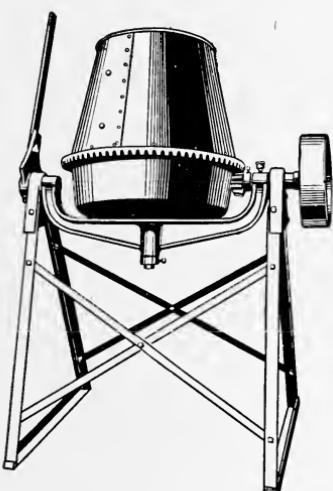
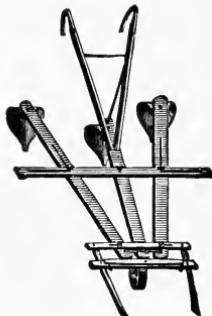
Price on application.

**GOSLEE IMPROVED FIELD MARKER**

(Spread 2 to 4 feet)

This machine is designed to mark out rows any width for any crops grown in rows. Teeth are adjustable to any size and depth drill.

Price on application.

**THE JUMBO CONCRETE MIXER**

Capacity from 27 to 45 cubic yards of well mixed concrete a day. Have you ever figured out just how much time and money a good concrete mixer would save you?

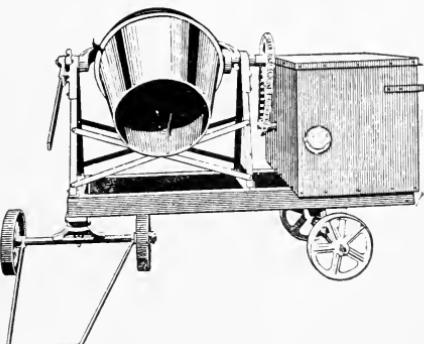
A Jumbo, for example, with a squad of four men will do the work of 8 to 10 at hand mixing, which means a saving of at least \$15 a day — and a better mix can be obtained. Can be operated by hand or engine.

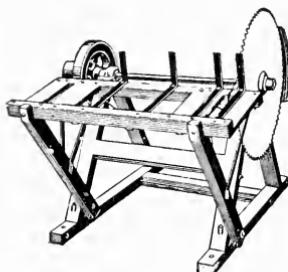
Price on application.

**THE JUMBO CONCRETE MIXER Mounted  
on Truck With Jumbo 1 3/4 H. P. Engine**

Several advanced and practical features of internal combustion engine design are embodied in the Jumbo construction. For example, the magneto is attached to the cylinder head directly over the intake valve, which insures positive ignition, and longer life to the igniter insulation, and complete utilization of the fuel.

Price on application.





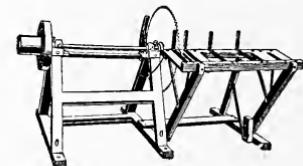
## Jumbo Saw Frames

**No. 700** With Tilting Table. Built especially for sawing cord wood. Mandrel of finest cold rolled steel  $1\frac{1}{16}$ " dia., 49" long — fitted for saw with  $1\frac{3}{8}$ " hole. Flywheel is accurately machined and carefully balanced,  $15\frac{1}{2}$ " dia., weight 65 lbs. Standard pulley size 6 x 6".

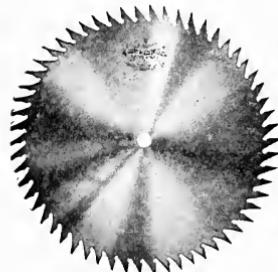
Price on application.

**No. 701** With Pole Extension — One of the best frames obtainable for sawing long poles and heaviest cord wood.

Price on application.



## Curtis Guarantee Cord-Wood Saws



Always run the saw at proper speed, too high or too low is equally bad.

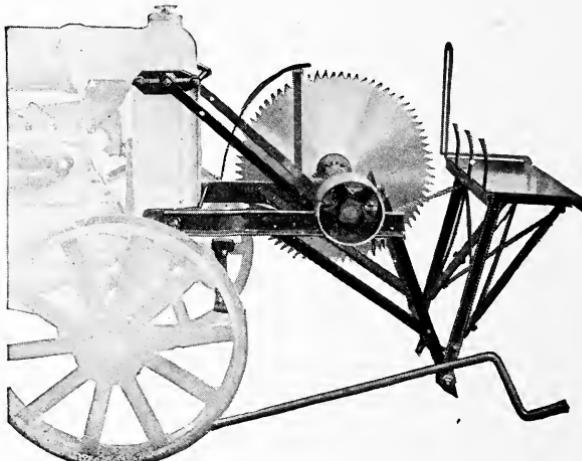
Dia.	No. Teeth	Speed
20"	52	1800
22"	56	1636
24"	60	1500
26"	64	1384
28"	70	1285
30"	76	1200

Prices on application.

## Stover Saw Frame

Take the saw to the wood not the wood to the saw. With the Stover Rig attached to your Fordson, you can take your outfit wherever poles, etc., happen to be, saw them up, and go on. Complete with 30" saw and 5" rubber belt.

Price on application.

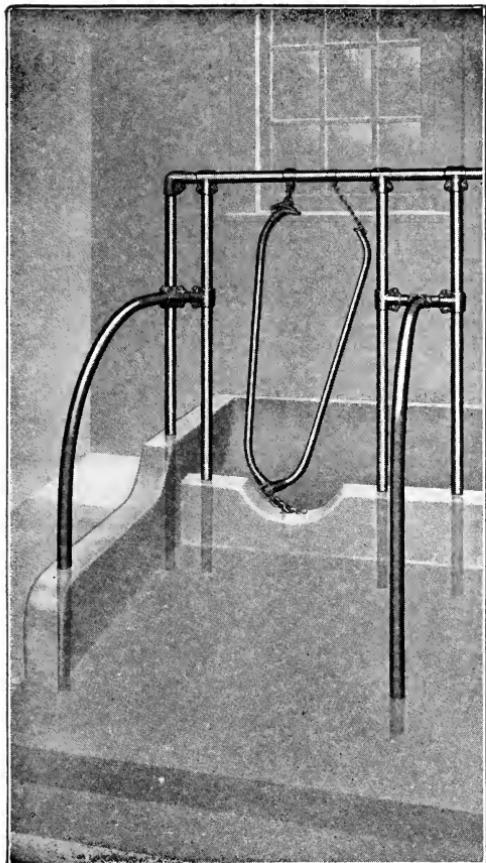
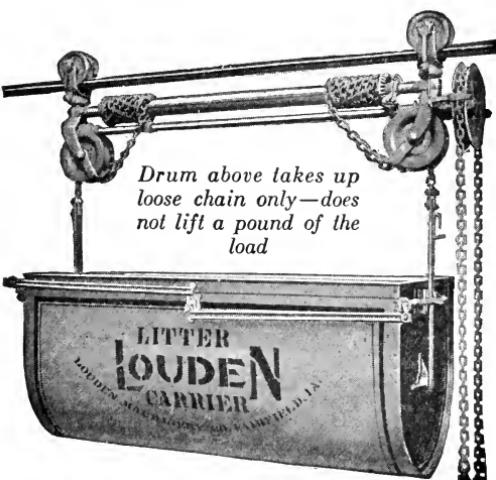


**LOUDEN LITTER CARRIER**

We believe this to be far the greatest litter carrier ever built. Made to handle heavy loads of wet manure easily, safely and for many years.

Tub is water tight, full 12-bushel capacity. The worm gear hoist on this Louden Carrier is built on the same principle as the highest grade industrial hoists. It is far superior to the dangerous, troublesome brake and ratchet type.

Load hangs squarely under the track with minimum wear on trolleys. Roller bearing wheels. Sturdy steel track, good for a lifetime. Tub trips from either end. In every respect a quality carrier. Close comparison with any other merely emphasizes its outstanding superiority. Prices and complete description gladly furnished. Ask for them.

**Louden Steel Stalls and Stanchions**

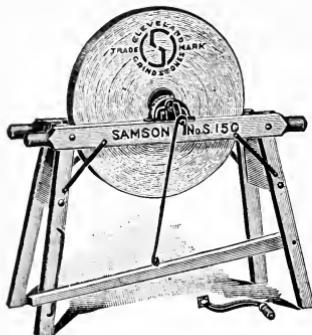
Famous the world over as the "Pasture Comfort" Stall. Built with single-chain-hung and anchored stanchion, which permits the cow to get up and lie down easily without lunging and struggling.

Made of the highest quality steel — extra strong and durable. Full  $1\frac{5}{8}$ -inch O.D. high carbon open-hearth steel tubing — not soft pipe. Set solidly in concrete for permanent satisfaction. Couplings, certified malleable iron with patented dust proof construction. The Louden is unquestionably the most sanitary stall on the market.

Furnished with tubular steel, wood lined or closed top stanchions, as selected by the customer.

**Louden Stall No. 812**

The highest quality Louden Stall — double posts give double strength. Cows easily turn and card their sides and rest at ease. Chain guide stanchion always hangs in proper position to receive cow's head. Stanchion latch cow proof, easily opened with one hand. If you want the best, this is it.



## GRINDSTONES

### SAMSON MOUNTED GRINDSTONES

This frame is made of seasoned hard wood. The legs are securely gained into side pieces and the ends are in one piece. Two bolts at each end pass through the entire frame from side to side. The ends of the side bars are neatly turned to serve as handles. No. 1 with large stone.

Price on application.

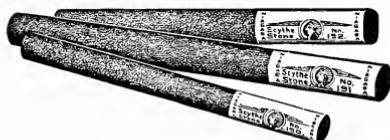


### NORKA BALL BEARING GRINDSTONE

A very strong and easy running grindstone, practically indestructible. The frame is constructed of heavy tubular steel, thoroughly braced. The shaft is of cold rolled steel and turns in a splendid ball bearing device. The Pitman connection is also ball bearing.

Price on application.

## ALOXITE — A GREAT SCYTHE STONE



Made in four sizes.

No. 188 — 10" long	Price \$0.30
No. 190 — 10" long	" .30
No. 191 — 12" long	" .35
No. 192 — 10" long (heavy)	.35

### CARBORUNDUM NO. 57 FILE

Here is one of the most useful tools that you can own. Will sharpen about every farm or garden tool. Price \$1.00.



Fig. 603.

## STEEL DRAG SCRAPERS

No. 3 — 3 cubic ft.

No. 2 — 5 cubic ft.

No. 1 — 7 cubic ft.

Prices on application.

## All-Wood Frame Steel Tray General Purpose BARROW



For the contractor, farm, garden and home use, cheapness and lightness have not been gained by sacrificed strength, rigidity or finish. And it has not been made by simply building it "child size". It is a real man's barrow and is made for real work.

Price on application.

## GARDEN BARROWS



These barrows are nicely painted and striped, either red or green and built to last a lifetime.

	Number	With Wood or Steel Wheels	Inside Measurement of Box, Length, Inches	Width at Wheel End, Inches	Width at Handle End, Inches	Depth, Inches	Diameter of Wheel, Inches	Tread of Wheel, Inches	Weight Each, Pounds
Eastern Garden	3	Medium	24	16	20	10½	18	1½	40
Eastern Garden	4	Large	26½	18½	23	12	20	1¾	45
Buch's	2	Large	27	20	24	12	20	1¾	50
Buch's	3	Medium	26	19	22	12	20	1¾	50
John Deere		Medium	27	19	22	13	20	1¾	50
John Deere		Large	29	20	23	16	20	1¾	55

Prices on application.

## MORTAR BARROWS



Lansing      No. F2      (as shown)  
 "              " F24      (deeper tray)  
 "              " A15      (tubular)  
 John Deere    " C3½      (oval front tray)

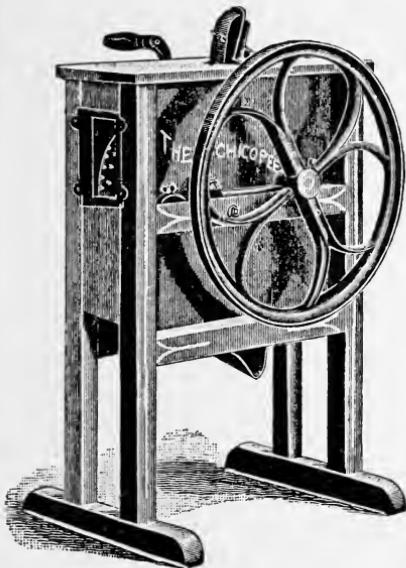
Prices on application.



12 acres Broadleaf grown on O. & W. Blue Label Tobacco Fertilizer  
by John Hartnett, So. Windsor, Conn.



12 acres Broadleaf grown on O. & W. Fertilizer  
by James Laughlin, Hazardville, Conn.



### Corn Shellers

**Frame**—Of hard wood, well mortised together, and neatly painted.

**Large Hopper**—Adjustable to shell all sizes of ears, and large Dent corn as well.

**Heavy Fly-Wheel**—With shaft of cold rolled steel gives not only strength of construction, but smooth running with little power.

**Separator**—On the front of the machine, which separates the ears from the shelled corn.

**Chaff Sieve**—Assists in screening the corn which passes out through the small spout at the bottom. Weight 125 lbs.

**Chicopee**—One hole hand. (as shown)

**Chicopee**—Two hole power.

**Lion**—One hole hand.

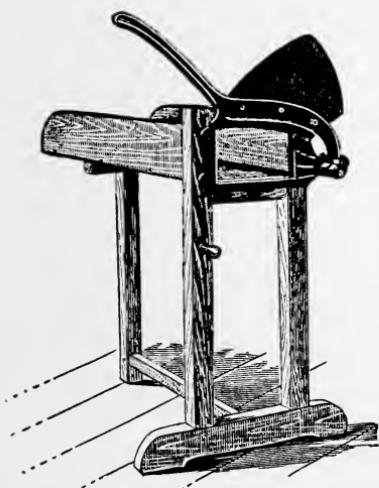
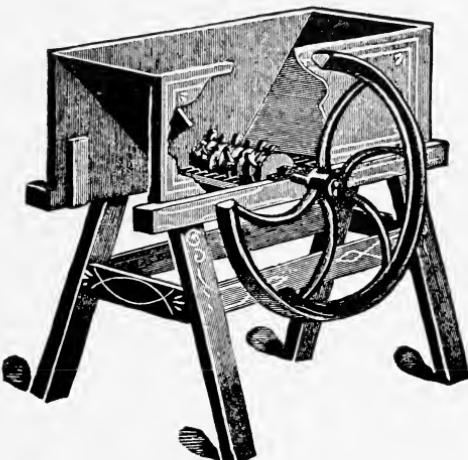
Prices on application.

### Champion Vegetable Cutter

This is one of the best machines in the market for cutting all kinds of vegetables. It is made with a wrought shaft with sections of knives fastened to it, and arranged so that a rotation of knives is continually passing a bed knife with cross knives passing between the section of knives; cutting always near the center shaft, making it cut easy and fine enough for cattle or sheep; also making a very regular cut.

This machine will cut sixty bushels an hour

Price on application.

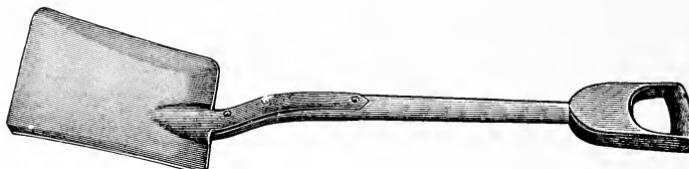


### Lever Feed Cutters

This is a simple and durable machine. The device for adjusting the lever, being removed from the pivot, enables us to have a stationary pivot firmly attached to the machine, and consequently not liable to get loose, as in all machines where the pivot is adjustable.

Prices on application.

**SQUARE AND ROUND POINT WOOD D. OR LONG  
HANDLED PLAIN BACK FULL  
POLISHED SHOVELS**



No. 2, Grade A

No. 2, Grade B

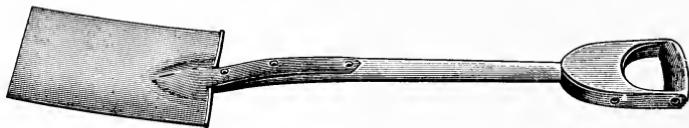
No. 3, Grade A

No. 3, Grade B

**GENUINE OLIVER AMES SHOVELS**

No. 2

No. 3



**WOOD D. OR LONG HANDLED PLAIN BACK  
FULL POLISHED No. 2 SPADES**

**COAL SCOOPS**

No. 3 Riveted back . . . . .	·	·	·	·	·	·	·	·	·	·	·
No. 4 " " . . . . .	·	·	·	·	·	·	·	·	·	·	·
No. 5 " " . . . . .	·	·	·	·	·	·	·	·	·	·	·

**HOUSEHOLD FURNACE SCOOPS**

Long Handle . . . . .	·	·	·	·	·	·	·	·	·	·	·
Mal. D. Handle . . . . .	·	·	·	·	·	·	·	·	·	·	·
Oliver Ames . . . . .	·	·	·	·	·	·	·	·	·	·	·

**SNOW SHOVELS**

No. 25 Trojan spring steel (black) . . . . .	·	·	·	·	·	·	·	·	·	·	·
No. 29 Eclipse (Galv.) . . . . .	·	·	·	·	·	·	·	·	·	·	·
Wirts Snow Pushers . . . . .	·	·	·	·	·	·	·	·	·	·	·
No. 81 Snow Scoop 30 in. . . . .	·	·	·	·	·	·	·	·	·	·	·
Sidewalk Cleaners, socket pattern . . . . .	·	·	·	·	·	·	·	·	·	·	·

Prices on application.

## TOBACCO HOES

These Hoes are specially adapted to Connecticut Valley Trade.



Size						
8 $\frac{1}{2}$ in. x 2 $\frac{1}{2}$ in.	.	.	.	.	.	.
9 in. x 2 $\frac{1}{2}$ in.	.	.	.	.	.	.
9 $\frac{1}{2}$ in. x 2 $\frac{1}{2}$ in.	.	.	.	.	.	.
10 in. x 2 $\frac{1}{2}$ in.	.	.	.	.	.	.
11 in. x 2 $\frac{1}{2}$ in.	.	.	.	.	.	.

## GARDEN OR FIELD HOES

7 inch	.	.	.	.	.	.
8 inch	.	.	.	.	.	.
9 in. x 3 $\frac{3}{4}$ in.	.	.	.	.	.	.
10 in. x 3 $\frac{1}{2}$ in.	.	.	.	.	.	.

## STEEL GARDEN RAKES

12 Teeth, 5 $\frac{1}{2}$ ft. Handle	.	.	.	.	.	.
14 " " "	.	.	.	.	.	.
16 " " "	.	.	.	.	.	.
18 " " "	.	.	.	.	.	.

## WIRE LAWN RAKES

24 Teeth—Bolted Pattern	.	.	.	.	.	.
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## SPADING FORKS

4 Tine, Long	Handle, Strap Ferrule	.	.	.	.	.
4 " Mal. D	" " "	.	.	.	.	.
5 " Long	" " "	.	.	.	.	.
5 " Mal. D	" " "	.	.	.	.	.
5 " Wood D	" " "	.	.	.	.	.

## ADJUSTABLE GARDEN CULTIVATORS

3 Tooth Short Handle (8 in.)	.	.	.	.	.	.
3 " Long " (4 ft.)	.	.	.	.	.	.
5 " " (4 $\frac{1}{2}$ ft.)	.	.	.	.	.	.
Easy Pull Long Handle (4 ft.)	.	.	.	.	.	.
" " " (4 $\frac{1}{2}$ ft.)	.	.	.	.	.	.
Garden Trowels Drop and Straight Shank	.	.	.	.	.	.
Triangular Steel Blade Onion Weeder	.	.	.	.	.	.

## TURF EDGERS

Long Handle, Socket Pattern	Shank Pattern	.	.	.	.	.
Iron D " "	" "	.	.	.	.	.

Prices on application.

## Oval Three-Tine Ferrule Hay Forks



4 ft.	Bent handle, 13 in. Tine, plain ferrule	.	.	.	.	.
4½ ft.	" " 13 " " "	.	.	.	.	.
5 ft.	" " 14 " " "	.	.	.	.	.
5½ ft.	" " 14 " " "	.	.	.	.	.
6 ft.	" " 14 " " strap ferrule	.	.	.	.	.

## "Electric" Hay Knives

Convex, curved blades with shanks forged from a single piece of high grade steel, 36 inches long.

## Manure Forks



Long Handle Common Ferrule	.	.	.	.	.	.	4, 5 and 6 Tine
Long " Strap "	.	.	.	.	.	.	" " " " "
Mal. D " Common "	.	.	.	.	.	.	" " " " "
Mal. D " Strap "	.	.	.	.	.	.	" " " " "
Wood D " Common "	.	.	.	.	.	.	" " " " "
Wood D " Strap "	.	.	.	.	.	.	" " " " "
S. A. B. Large 4 Tine Fork for handling light manure	.	.	.	.	.	.	.

## Steel Manure Hooks

4 Tine Bent Head 5 ft. Handle	.	.	.	.	.	.
4 " " " 6 ft. "	.	.	.	.	.	.
5 " " " 5 ft. "	.	.	.	.	.	.
5 " " " 6 ft. "	.	.	.	.	.	.

## Steel Potato Hooks

4 Tine Bent Head 4½ ft. Handle	.	.	.	.	.	.
5 " " " "	.	.	.	.	.	.
6 " " " "	.	.	.	.	.	.

Prices on application.

# Myers Hay Unloader



Illustrating how track, rope stop and pulley should be placed in barn.

Place pulley to draw the carrier back into the mow directly under and in line with track, as shown in cut. Do not allow steel track hanging hooks to project below casting under track through which they are screwed, as they will interfere with the carrier.

Illustration above shows how steel track should be put up and how rope is tied from one rafter to the other close under the track to make stop for carrier at end of barn. Also shows how rafter brackets are placed.

## DIRECTIONS FOR ERECTING MYERS PATENT STEEL TRACK.—

Scaffold by placing rope from rafter to rafter, say 6 feet from ridge pole or peak and about 10 feet apart. Then place extension ladder across the ropes with board to stand on. Now nail one rafter bracket at each end of barn and draw a line from one end to the other and stretch tight. Then nail all rafter brackets even with this line. You are now ready to put up the track, which can be done in sections. Hoist near to rafter brackets by ropes. Then place hanging hook over rafter bracket and finish by putting in bolt.

## Material Required for a Steel Track Outfit for Different Length Barns.

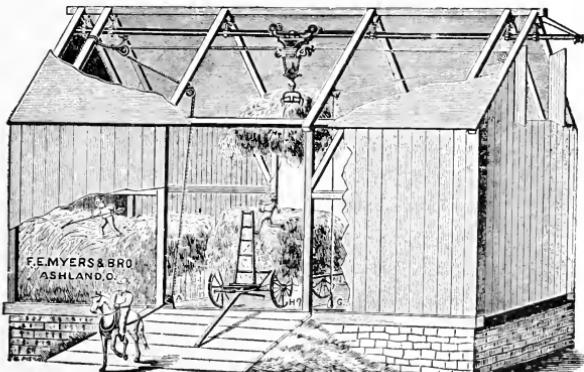
**FOR A 40 FOOT BARN.**—One Hay Unloader. 36 feet Steel Track. 19 Hanging Hooks. 19 Rafter Brackets. 5 Knot Passing Pulleys. 1 Fork or 3 Slings. 6 Floor Hooks. 110 feet  $\frac{3}{4}$  inch Manila Rope. 50 feet  $\frac{3}{8}$  inch Check Rope. 40 feet  $\frac{3}{8}$  inch Reverse Rope.

**FOR A 50 FOOT BARN.**—One Hay Unloader. 48 feet Steel Track. 25 Hanging Hooks. 25 Rafter Brackets. 5 Knot Passing Pulleys. 1 Fork or 3 Slings. 6 Floor Hooks. 130 feet  $\frac{3}{4}$  inch Manila Rope. 55 feet  $\frac{3}{8}$  inch Check Rope. 50 feet  $\frac{3}{8}$  inch Reverse Rope.

Different lengths of barns will use track, hanging hooks and rope in same ratio as above.

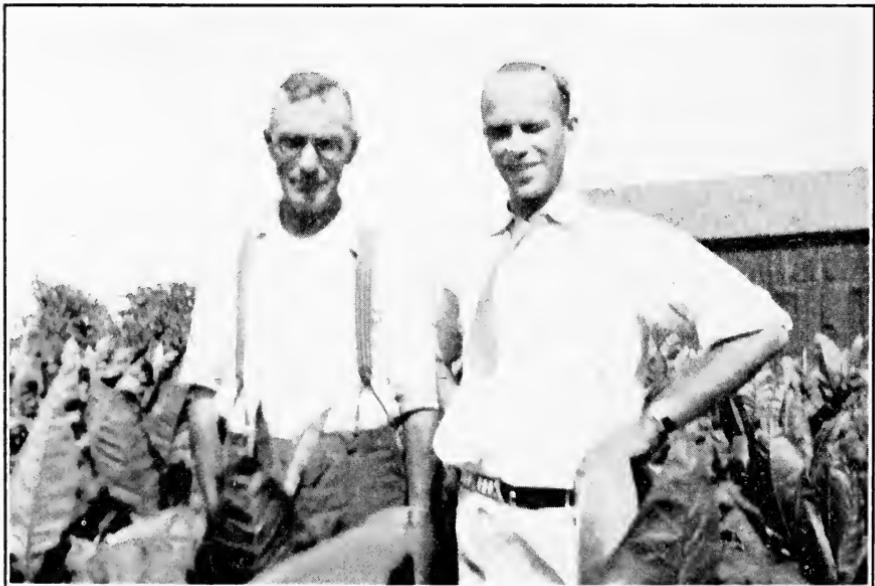
If required to take hay in at end of barn and have rope pass down at far end to horse, same amount of draft rope. If draft rope be returned to same end of barn and then down, this requires about one fourth more draft rope.

## Prices on application.





Fourteen acres Havana Tobacco grown on O. & W. Complete Tobacco Fertilizer on the Albert Glownia farm, Suffield, Conn.



Ten acres Havana Tobacco grown on O. & W. Complete Tobacco Fertilizer by John Gregg, West Suffield, Conn.



## Why O-Molene Is Best

Thousands of horses lose their working ability and pep after 7 or 8 years of service. While others do hard work for 15 or 20 years. It's not because some have not been fed plenty of feed. A monotonous diet of corn, oats and hay doesn't give them a healthful variety.

### What Goes Into O-Molene

To make O-Molene the perfectly balanced feed for horses and mules it goes thru a special process of manufacture. The grains are crushed and made more appetizing to the animal as well as more easily digested.

Only choice ingredients are used. Horses must have a feed that contains variety. O-Molene supplies a perfectly balanced ration.

### What Is Taken Out

First only the highest grade grains are used. These are dusted and thoroughly cleaned, taking out all the chaff, dust, clipped ends and other undesirable parts. Then the grain is dried in a large kiln so that much of the moisture you pay for in ordinary grain is removed.

The result is, it takes much less O-Molene than ordinary feeds to keep a horse in perfect condition, and make him live and work longer.

Try a few bags and you'll agree that O-Molene costs less in the long run.



**PURINA**



**Hold Back  
anything needed Here**

**and it shows Here**

A Cow can give milk to her fullest capacity only when fed the right proportion or balance of milk-making materials. Milk is made up of Protein, Carbohydrates, Fat, Minerals and Water, in proportions that, practically speaking, can't be varied. Instead of making imperfect milk, a poorly fed cow gives less milk.

### Feed Purina Cow Chow

and your cows will get all the Protein and Calcium needed to balance your Carbohydrate roughness.

All we ask is that you give **Purina Cow Chow** a trial and let your milk scales show you why you should keep on feeding it.



**PURINA**

# Fertilizers for the Dairy Farm

## Better Pastures

Fertilizer is the dairy farmer's best insurance. A few dollars invested in fertilizers for top-dressing your pastures insure big dividends in reduced feed bills and more milk.

### Signs of Pasture Starvation

There are three stages of pasture starvation: first, weeds and moss replace grass and clover; second, brush comes in; third, weeds and brush take possession. Look at your pasture! Are weeds, moss, and brush coming in? If so, plant food is lacking.

Pasture starvation results from selling plant food and lime in the form of milk and livestock. As with a bank account, to increase your income, you must add to your principal. Increased profits from dairy farming therefore call for intelligent and liberal use of fertilizers and lime. Phosphorus is the first plant food to become exhausted. Next to go are lime, potash and nitrogen.

### Top-Dress Annually after First Year

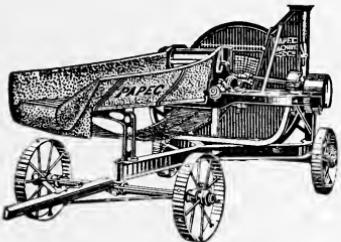
Whether the grasses persist for several years in a clean, heavy-yielding stand or very soon become weedy and decline in yield is absolutely a matter of fertility. Practically every experiment station in the eastern half of the country has proven that point. Fertilize the grasses and they live, yield well, and show a profit; starve them and they run out, get weedy and show a loss.

An application of 300 to 600 pounds per acre of O. & W. top-dressing fertilizer in early spring as soon as grass starts vigorous growth will supply the right kinds and amounts of plant foods at the right time for maximum returns.

## Papec Ensilage Cutters

For nearly thirty years Papec Ensilage Cutters have been the choice of the greatest number of farmers and those who do custom silo filling. During all this time they have proved staunch and trusty under the most exacting conditions. Today they are even better-built than ever before and guaranteed to accomplish more work in a given

period of time with less power than any other cutter. The reason for this is perfectly plain once the perfection of Papec construction is understood.



The Papec frame is one solid piece of semi-steel. It cannot warp or twist. There are no joints to work loose. The frame positively remains true for all time. All main bearings are cast-in — not bolted to — this solid frame, and are held in perfect and permanent alignment. The cutting wheel and knives are marvels of precision and ease of adjustment. The knives can be quickly removed from the cutting wheel for sharpening without affecting the adjustment.

The Papec self-feeder has been developed to such a point that a man at the feed table is no longer necessary. Even when the stalks are crooked, the uncut bundles can be fed direct from the wagon. A lever control both forward and reverse motion of feed rolls and self-feed apron. The entire feeding mechanism, can, therefore, be started, stopped or reversed while the cutter is running. All gears are covered. Rockwood fibre pulleys are furnished with all Papecs.

Papec Ensilage Cutters are made in four sizes to meet the demands of everyone — from the biggest custom filler to the smallest silo owner. They will not only cut silage right but elevate it into the top of the highest silo on less power than any other cutter. When you buy a Papec you own the best.

Prices and any other required information will be supplied on request.

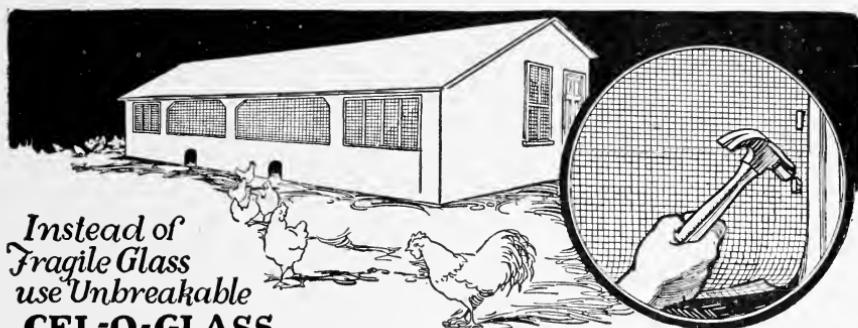
**PURINA**

# Life Growth Eggs



Feed a Balanced Ration for Year Round Profits  
 buy **PURINA POULTRY CHOWS**  
 at the Store with the Checkerboard Sign

**PURINA**



*Instead of  
Fragile Glass  
use Unbreakable  
CEL-O-GLASS*

Cel-O-Glass is an unbreakable highly translucent material made by coating tough wire mesh with a transparent substance that lets through practically as much light as clear glass. Is very light in weight, absolutely weatherproof and extremely easy and economical to use. It is flexible, comes in rolls 3 ft. wide and can be used almost any place where fragile glass is required.

Prices on application.

**B - K**

B-K is especially adapted for the prevention and treatment of poultry diseases such as Roupe, Canker, Cholera, Bacillary and White Diarrhea. B-K is also a Powerful Disinfectant.

Prices 10 oz., 60¢, Quart, \$1.25, Gal. \$3.00, 5 Gal. \$12.50.



**O. K. POULTRY LITTER**

(Imported peat moss)

Per Bale \$3.50 Delivered.

5 Bale lots \$3.25 each Delivered.  
25¢ per bale less at our warehouse.



**CARBOLA**

**Carbola**—The modern disinfecting whitewash can be used as a paint or powder spray it, brush it or dust it.

Prices 5 lb. 75¢, 10 lb. \$1.25, 25 lb. \$2.75, 50 lb. \$5.00.

**MAKOMB GIANT COAL  
BROODERS**

For 1931, the following worthwhile improvements have been incorporated in the MaKomb Giant:

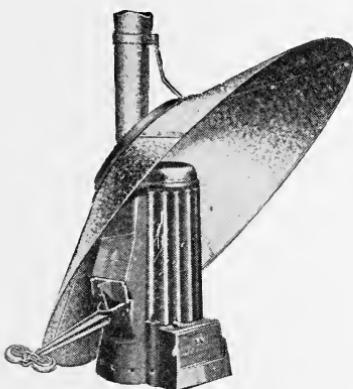
Square base and ashpit of greater capacity.

New type coal door hinge, eliminating binding or poor fit.

New Regulator Screw for easier adjustment.

Larger shaker handle, offset for convenience.

Hexagonal Canopy, handsomely, rigidly embossed.



*Giant Specifications*

	Chick Capacity	Coal Capacity	Shipping Weight	Price Each
47 in. Giant	350	35 lbs.	102 lbs.	\$15.00 Dis. for Cash
56 in. Giant	600	52 lbs.	130 lbs.	19.50 Dis. for Cash
65 in. Giant	800	73 lbs.	158 lbs.	23.50 Dis. for Cash



# Buy the Best

**MONEY SAVED IS  
MONEY EARNED!**

**S**AVING two or three gallons of paint on the average house means something to the man who buys carefully.

B. P. S. Fine Grinding makes a paint which covers 350 to 400 square feet, two coats—25 per cent more than Lead and Oil.

### ***True Economy in B. P. S.***

If you are tempted to buy paint because of the low price per gallon, please consider that the application cost is usually twice the cost of the paint, also that it costs as much or more to apply a cheap paint as it does to apply the Best Paint Sold. In fact, it costs less to use B. P. S. than any other paint, because the covering and spreading qualities of B. P. S. are greater and more than offset any difference in price.

Measure the value of your paint by the years of service it will give you—plus the appearance and number of square feet it will cover to the gallon—and you will decide to use B. P. S.—the Best Paint Sold—and in the end, the lowest in cost.

### ***82 Beautiful Colors to Select From***

We carry a full line of Brushes, Linseed Oil, Turpentine and Jewett White Lead

# Safe-coat Your Roof with


## Roofing Products

It is part of our job — when you have a roofing problem to solve — to advise you how to solve it most economically and with the greatest amount of satisfaction.

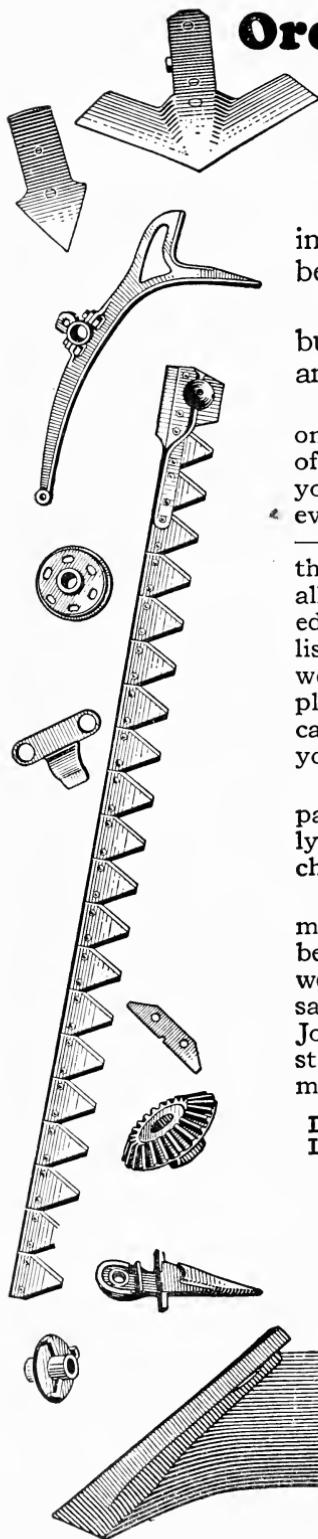
We heartily recommend Safekote roofings, whatever the problem; Slate surfaced shingles, strip or individual for your home, — barn or garage and Safekote roll roofings for other buildings.

We will also be glad to refer you to a reliable local roofing contractor or builder whom we know will lay the roof properly. He will guarantee his workmanship — Safe-pack Mills guarantees their products and we stand back of both with our assurance of satisfaction.

This is a sweeping assurance of roofing insurance for you — but it's sincere.

That's why we sell Safekote Roofing — also why we sell so much of it.

If you contemplate building a home or re-roofing the old one — telephone, write or call on us, so that we may prove to you how economically — how beautifully — how permanently — Safekote roofings will meet your requirements.



## Order Your Repairs Before the Rush Comes

Don't get caught this spring with implements that cannot be operated because of a few needed repairs.

A delay of a day or two in your busy season may result in big dollars-and-cents loss.

Here's a way to prevent delays later on. Right now, when you have plenty of time, take a complete inventory of your implement equipment. Go over every machine you plan to use this year—see if new boxes are not needed—if the plow shares are in usable shape—if all parts are whole. Jot down the needed parts on each machine, give us the list so that we can order such parts that we may not have in stock. We will supply the new parts to you quickly, so you can get your machines in ship-shape for your field work.

Don't forget, too, that genuine repair parts last longer, fit better and materially prolong the usefulness of your machinery.

While you are going over your equipment, you may find machinery that is beyond profitable repair. Remember, we have a full line of John Deere labor-saving, crop-producing implements. John Deere machinery, built to a high standard of quality, is the most economical in the long run.

**Don't forget to order your repairs early.  
Last-minute ordering is usually costly.**

## SEED AND PLANT TABLES.

	Quantity Per Acre	Weight Per Bu.
Barley . . . . .	95 to 120 lbs.	48 lbs.
Blue Grass (Canada) . . . . .	25 to 40 lbs.	14 lbs.
" (Kentucky) . . . . .	25 to 40 lbs.	14 lbs.
Buckwheat . . . . .	50 to 60 lbs.	48 lbs.
Clover-Alfalfa (Broadcast) . . . . .	20 to 30 lbs.	60 lbs.
" " (Drills) . . . . .	15 to 20 lbs.	60 lbs.
" Crimson . . . . .	10 to 20 lbs.	60 lbs.
" Red . . . . .	10 to 15 lbs.	60 lbs.
" White. . . . .	5 to 10 lbs.	60 lbs.
Corn (Hills) . . . . .	15 to 20 lbs.	56 lbs.
" (drills for fodder) . . . . .	60 to 75 lbs.	56 lbs.
" (broadcast) . . . . .	120 to 150 lbs.	56 lbs.
Cow Peas in Drills. . . . .	60 to 90 lbs.	60 lbs.
Millet (Common) . . . . .	25 to 40 lbs.	48 lbs.
" (Hungarian) . . . . .	25 to 40 lbs.	48 lbs.
" (Japanese) . . . . .	12 to 20 lbs.	32 lbs.
Oats . . . . .	60 to 90 lbs.	32 lbs.
Orchard Grass . . . . .	25 to 40 lbs.	14 lbs.
Rape (broadcast) . . . . .	5 to 6 lbs.	60 lbs.
" (drills) . . . . .	3 to 4 lbs.	60 lbs.
Red Top (unhulled) . . . . .	25 to 40 lbs.	14 lbs.
" " (recleaned) . . . . .	10 to 15 lbs.	35 lbs.
Rhode Island Bent Grass . . . . .	25 to 40 lbs.	14 lbs.
Rye Grass (Italian) . . . . .	40 to 50 lbs.	18 lbs.
Soya Beans (broadcast) . . . . .	50 to 75 lbs.	60 lbs.
" " (in rows) . . . . .	20 to 30 lbs.	60 lbs.
Sudan Grass . . . . .	15 to 20 lbs.	
Timothy . . . . .	15 to 30 lbs.	45 lbs.
Vetch (Spring) . . . . .	50 to 70 lbs.	60 lbs.
Vetch (Winter) . . . . .	30 to 60 lbs.	60 lbs.
Wheat . . . . .	90 to 120 lbs.	60 lbs.
Potatoes, . . . . .	12 Bu.	60 lbs.
Clover, . . . . .		8 pounds
Timothy, . . . . .		1/4 bushel
Red Top, . . . . .		3 pounds
Peas in drills are sown $1\frac{1}{2}$ to $1\frac{1}{4}$ bushels to the acre.		
Carrots, . . . . .	usually sown to the acre, $2\frac{1}{2}$ to 3 lbs.	
Beets, . . . . .	" " " " "	4 to 6 lbs.
Parsnips, . . . . .	" " " " "	3 to 6 lbs.
Onions, . . . . .	" " " " "	4 to 6 lbs.
Ruta Bagas, . . . . .	" " " " "	1 lb.
Turnips, . . . . .	" " " " "	1 to $1\frac{1}{2}$ lbs.
Beans, . . . . .	" " " " "	$1\frac{1}{2}$ to 2 bu.

## Quantity of Corn Required to Plant an Acre, Five Grains in a Hill.

3 ft. x 2	.	.	.	.	.	18 qts.	3 ft. x 3	.	.	.	.	14 qts.
$3\frac{1}{2}$ ft. x 3	.	.	.	.	.	10 qts.	$3\frac{1}{4}$ ft. x 3	.	.	.	.	8 qts.
3 ft. x 4	.	.	.	.	.	7 qts.	4 ft. x 4	.	.	.	.	6 qts.

## Number of Plants per Acre at Given Distances.

1 ft. x 1 ft.	43,560	9 ft. x 9 ft.	.	.	.	.	.	.	.	.	.	537
$1\frac{1}{2}$ ft. x $1\frac{1}{2}$ ft.	19,360	12 ft. x 12 ft.	.	.	.	.	.	.	.	.	.	362
2 ft. x 2 ft.	10,890	15 ft. x 15 ft.	.	.	.	.	.	.	.	.	.	163
$2\frac{1}{2}$ ft. x $2\frac{1}{2}$ ft.	6,969	18 ft. x 18 ft.	.	.	.	.	.	.	.	.	.	134
3 ft. x 3 ft.	4,840	20 ft. x 20 ft.	.	.	.	.	.	.	.	.	.	100
4 ft. x 4 ft.	2,722	25 ft. x 25 ft.	.	.	.	.	.	.	.	.	.	73
5 ft. x 5 ft.	1,742	30 ft. x 30 ft.	.	.	.	.	.	.	.	.	.	47
6 ft. x 6 ft.	1,210	40 ft. x 40 ft.	.	.	.	.	.	.	.	.	.	20

## Quantity of Seed Required for a Given Number of Plants, or Number of Hills, or Length of Drill.

Asparagus, . . . . .	1 oz. to 65 ft. of drill	Musk Melon, . . . . .	1 oz. to 60 hills
Beets, . . . . .	1 oz. to 50 ft. of drill	Okra, . . . . .	1 oz. to 40 ft. of drill
Beans, Dwarf, . . . . .	1 oz. to 100 ft. of drill	Onion, . . . . .	1 oz. to 100 ft. of drill
Beans, Pole, . . . . .	1 pt. to 150 hills	Onion Sets, small, . . . . .	1 qt. to 4 ft. of drill
Carrot, . . . . .	1 oz. to 150 ft. of drill	Parsley, . . . . .	1 oz. to 150 ft. of drill
Cabbage, . . . . .	1 oz. to 3,000 plants	Parsnip, . . . . .	1 oz. to 200 ft. of drill
Cauliflower, . . . . .	1 oz. to 3,000 plants	Peas, . . . . .	1 qt. to 100 ft. of drill
Celery, . . . . .	1 oz. to 4,000 plants	Pumpkin, . . . . .	1 oz. to 2,000 plants
Cucumbers, . . . . .	1 oz. to 50 hills	Pepper, . . . . .	1 oz. to 40 hills
Corn, . . . . .	1 qt. to 400 hills	Radish, . . . . .	1 oz. to 100 ft. of drill
Dandelion, . . . . .	1 oz. to 200 ft. of drill	Salsify, . . . . .	1 oz. to 70 ft. of drill
Endive, . . . . .	1 oz. to 150 ft. of drill	Spinach, . . . . .	1 oz. to 100 ft. of drill
Egg Plant, . . . . .	1 oz. to 2,000 plants	Squash, early, . . . . .	1 oz. to 50 hills
Lettuce, . . . . .	1 oz. to 4,000 plants	Squash, marrow, . . . . .	1 oz. to 16 hills
Leek, . . . . .	1 oz. to 100 ft. of drill	Tomato, . . . . .	1 oz. to 3,000 plants
Watermelon, . . . . .	1 oz. to 80 hills	Turnip, . . . . .	1 oz. to 150 ft. of drill

One Gallon, by the U. S. Standard Unit of Liquid Measure contains 231 cubic inches.

The U. S. Bushel contains 2,150.42 cubic inches.

An Acre contains 43,560 square feet.

## USEFUL CHEMICAL MEMORANDA

(Partly from the first annual report of the Connecticut Agricultural Experiment Station, 1876.)

Animal and vegetable substances, such as flesh, bone, wood, grain, manure, and the like, contain three classes of materials: Water, Organic Matters and Mineral Matter or Ash. If we heat a piece of wood, a whisp of hay, a bone, or a portion of manure or soil, in an oven, the water will be dried out. If we put the dried material in the fire, the *Organic Matter*, which consists mostly of the chemical elements, carbon, oxygen, hydrogen, and nitrogen will be burned away, and there will remain the *Mineral Matter or Ash*. The ash of these different materials generally contains more or less potash, soda, lime, magnesia, iron, alumina, silica, phosphoric acid, sulphuric acid, chlorine, or other ingredients. The proportions of these vary widely in different substances, from the large quantities to the merest traces.

**Moisture.**—All fertilizers contain more or less water, which, of course has no commercial value, and serves to make them heavier and relatively poorer in valuable ingredients. In the analysis that which is removed by heating to 212° Fahrenheit (or in some cases to a somewhat higher temperature), is designated as moisture. By subjecting the dried material to a higher temperature, the organic and volatile matters are driven off, and the ash remains. By treating this ash with strong acids, all that is of any value is dissolved.

**Sand and Insoluble Matters.**—The residue, which resists the action of both fire and strong acids, consists of silica and other mineral matters. These possess no fertilizing value, and are classified as sand, etc.

**Nitrogen, Ammonia.**—In our ordinary fertilizers, much or all of the nitrogen exists in unavailable forms. By more or less rapid alterations, by decay or otherwise which take place in the soil, these are changed to other compounds, which the plant can readily use as food. Of these latter nitric acid, which contains nitrogen combined with oxygen, is one; ammonia which consists of nitrogen and hydrogen and is represented by the chemical formula N. H. is another. 14 parts by weight of nitrogen unite with 3 parts of hydrogen to form 17 parts of ammonia. Accordingly 14 parts of nitrogen are said to be equivalent to 17 of ammonia, or what is the same thing 100 parts of nitrogen are reckoned as equivalent to 121 parts of ammonia. In pure sulphate of ammonia, all the nitrogen is in the form of ammonia. In Peruvian guano, some of the nitrogen exists as ammonia also. In our ordinary fertilizers there is little or no ammonia. The very common practice of reckoning nitrogen as ammonia in fertilizers which do not contain it in this form is incorrect, misleading and therefore wrong, and ought to be abolished. Ammonia combined with sulphuric acid, forms sulphate of ammonia; nitric acid combined with soda, forms nitrate of soda.

**Phosphoric Acid: SOLUBLE, REVERTED AND INSOLUBLE.**—By phosphoric acid is understood the compound of phosphorous and oxygen, which is represented by the chemical formula,  $P_2O_5$ . This combined with lime, forms phosphate of lime. The phosphate of lime which occurs in bone, and in South Carolina and other fossil and mineral phosphates, contains three parts of lime to one of phosphoric acid. This is often called bone phosphate, and is insoluble in water. When the bone phosphate is treated with sulphuric acid, the latter takes part of the lime to itself, forming sulphate of lime, and leaves the phosphoric acid in the form of a *Superphosphate*. This last is soluble in water, and when used as a fertilizer can be taken up by the plant at once, while the bone phosphate is slowly available as plant food. Phosphoric acid which has been rendered soluble, often enters into other forms of combination with lime, alumina, etc., which, though insoluble in water, are soluble in citrate of ammonia. The terms, reverted, reduced and precipitated, are applied to it when in this form.

The reverted phosphoric acid ranks in solubility, and consequently in values between the soluble and insoluble. The soluble and reverted are sometime, classed together as *Available* phosphoric acid.

In some analyses the percentage of phosphoric acid is not stated separately, that of "bone phosphate of lime" being given in its stead. Sometimes the expression "soluble bone phosphate of lime" is met with, which is certainly a misnomer. 142 parts by weight of phosphoric acid  $P_2O_5$  unite with about 168 parts of lime  $CaO$  to form 310 parts of bone phosphate  $Ca_3(PO_4)_2$ ; 100 parts or pounds of phosphoric acid are said, therefore, to be equivalent to 218 parts of bone phosphate. Special stress is laid on this point, because those not familiar with chemistry are apt to be deceived in comparing analyses, in some of which the term phosphoric acid, and in others the term bone phosphate, is used. It would be more accurate and clear, and in every way better to discard the term bone phosphate of lime in analyses of fertilizers, and speak only of phosphoric acid.

Potash, or potassa, is the compound of the metal potassium with oxygen, which is represented by the chemical formula  $K_2O$  or  $KO$ . This combined with sulphuric acid forms sulphate of potash. Potassium and chlorine together form chloride of potassium, or "muriate of potash," as it is called by dealers.

100 pounds of pure sulphate of potash contains about 54 pounds of "actual potash." 100 pounds of sulphate of potash are therefore said to be equivalent to 54 pounds of actual potash, and vice versa, 54 pounds of potash, in the sulphates are reckoned as equivalent to 100 pounds of sulphate of potash. In the "muriates" 100 pounds of chloride of potassium are reckoned equivalent to about 63 pounds of potash, and vice versa.

Carbonate of Potash,  $K_2CO_3$ . — This fertilizer chemical is the ingredient which gives to wood ashes and cotton hull ashes their value as tobacco fertilizers, and it is practically free from magnesia. It was formerly prepared by extraction from wood ashes, and formed the "pearl ash" of commerce. It has been used with good effect as a tobacco fertilizer in the Poquonock experiments.

The following figures will be found useful in calculations of the composition of fertilizers.

## NITROGEN COMPOUNDS

14.	parts of Nitrogen	are contained in	17.	parts of Ammonia.
100.	"	"	121.43	"
82.35	"	"	100.	"
17.	"	Ammonia	66.	Sulphate of Ammonia.
100.	"	"	388.2	"
25.8	"	"	100.	"
14.	"	Nitrogen	66.	"
100.	"	"	471.4	"
21.2	"	"	100.	"
14.	"	"	54.	Nitric Acid.
100.	"	"	385.7	"
25.9	"	"	100.	"
14.	"	"	85.	Nitrate Soda.
100.	"	"	607.1	"
16.47	"	"	100.	"
54.	"	Nitric Acid	85.	"
100.	"	"	157.4	"
63.5	"	"	100.	"
85.	"	Nitrate of Soda correspond to	17.	Ammonia.
100.	"	"	20.	"
500.	"	"	100.	"

## PHOSPHORIC ACID

100.	parts of Phosphoric Acid	correspond to	218.3	parts of Bone Phosphate.
45.8	"	"	100.	"

## POTASH (Potassa)

100.	parts of Sulphate of Potash	contains	54.08	parts of Potassa.	
184.9	"	"	100.	"	
100.	"	Chloride of Potassium	correspond to	63.17	parts of Potassa.
158.3	"	"	"	100.	"

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